





A
GRAMMAR
OF
INFINITE FORMS.

EDINBURGH,
PRINTED BY OLIVER & BOYD,
TWEEDDALE-COURT.

A
GRAMMAR
OF
INFINITE FORMS ;
OR,
THE MATHEMATICAL ELEMENTS OF ANCIENT
PHILOSOPHY AND MYTHOLOGY.

BY WILLIAM HOWISON.

— ramos *annosaque* brachia pandit
Ulmus opaca, ingens : quam sedem somnia vulgo
— tenere ferunt, foliisque sub omnibus hærent.

EDINBURGH :

PUBLISHED BY

OLIVER & BOYD, TWEEDDALE-COURT ;

SOLD ALSO BY

G. & W. B. WHITTAKER, LONDON.

1823.



BL730
H6

PREFACE.

THE purpose of this treatise is, in the first place, to recall from oblivion the knowledge of those elementary powers of mathematical form which were the basis of all the fables belonging to that ancient *system* of philosophy and poetry which is now called mythology. These are found as twelve successive steps in one continued deduction, which takes in all the simple or uncompounded powers of mathematical form; and, although the knowledge of their deductive order has been lost or forgotten during the intervening ages, it is shewn, by many existing traces, to have been well understood at one time by the Greeks and other cotemporary nations. It was the chief source of the truth of their conceptions and the correctness of their

taste, which always approached as near as possible to abstract rule.

The present treatise is called a Grammar, because it shews the order and syntax of these powers, and defines the qualities peculiar to each. But the second part relates to the *modes of composition* which are derived from the union of powers, and which modes of composition are also found as steps in a regular series.

The author of the following pages, in pursuing these abstractions, may seem to be exerting an useless ingenuity, and spending labour in vain, for the purpose of resuscitating antiquated and scarcely amusing fables. He is of opinion, however, that none of these were originally contrived at random, or for commemorating particular events, but were originally intended for a totally different purpose, and are valuable memorials of the study of abstract truths, which cannot even now be expressed by a more convenient set of symbols. But, in this treatise, the compositions, and the

modes of being which result from them, are frequently illustrated by references to modern nations, characters, events, or works of genius, in which the natures belonging to them seem to have been exemplified. And, although the coincidences pointed out may perhaps sometimes awaken a sense of the ludicrous, the author of this treatise professes to have no intention of insulting any department by the illustrations. It cannot but serve a good end to exhibit the severe forms of abstract truth without any accommodation to the feelings of mankind; who may be accused of what, in the present condition of society, must be considered as an *excessive* respect for human nature.

PREFACE.

THE purpose of this Treatise is to help to determine an important question which occurs in philosophy, and which is, Whether the number of *kinds* or modes of being, exemplified in nature, be limited or not? It is evident that each kind may have subordinate classes, but these cannot exist apart from it. This Treatise is intended to shew that every kind, which is really apart from others, must be founded on some SIMPLE power, existing in abstract idea, that is to say, having a mathematical existence. Now, the number of simple mathematical powers (which are capable of flux and progression) will be found to be limited; and, therefore, the number of KINDS, OR MODES OF BEING, which are founded on them, must also be limited.

The author of the following pages has been led to suppose that the whole system of Grecian mythology had a mathematical origin, and that the beautiful differences of character, in the chief divinities, were the same as those of the simple mathematical powers which are capable of flux and progression. Thus the attributes of each divinity became entirely distinct from those of the rest; and each inhabitant of Olympus assumed a character so clearly and strongly discriminated as never afterwards to be forgotten, either among barbarians, or more civilized generations.

Part First of the following Treatise relates to the simple mathematical powers which are capable of flux; and these are found deductively as steps in a series, wherein each power presupposes that which is immediately anterior. In this mathematical theorem, the first steps are of the most obvious nature; but the rest are such as not to occur so readily to the mind. The deductive order of these powers, however, must undoubtedly

have been studied and perceived by the ancients, although it has been overlooked or allowed to fall into oblivion during the intervening ages.

Part Second of the following Treatise is an inquiry into the mathematical flow or progression of COMPOSITIONS which, in number and difference of kind, correspond with the simple powers. In the latter, there is merely the flux of quantity and proportion which takes place in the same form prolonged and continued. But composition produces a new beauty, which is the FLUX OF KIND, or the progressive exemplification of the same generic power as it changes through an endless series of particular instances or acts. This in fact is the same as the nature of animated beings, and corresponds with mental life or activity. In this department, ancient fable and imagination chiefly delighted to luxuriate; and mythology, besides particularizing the attributes of the chief divinities, as elementary powers, farther abounded with the characters of heroes, demigods, and local powers,

all intended to express the kinds of intellectual life or mental sensation. These were, at the same time, really exemplified in the nations and races of mankind, to which, as well as to works of genius, the author of the following Treatise has frequently referred for illustration.

CONTENTS.

PART I.

ON THE MATHEMATICAL ELEMENTS.

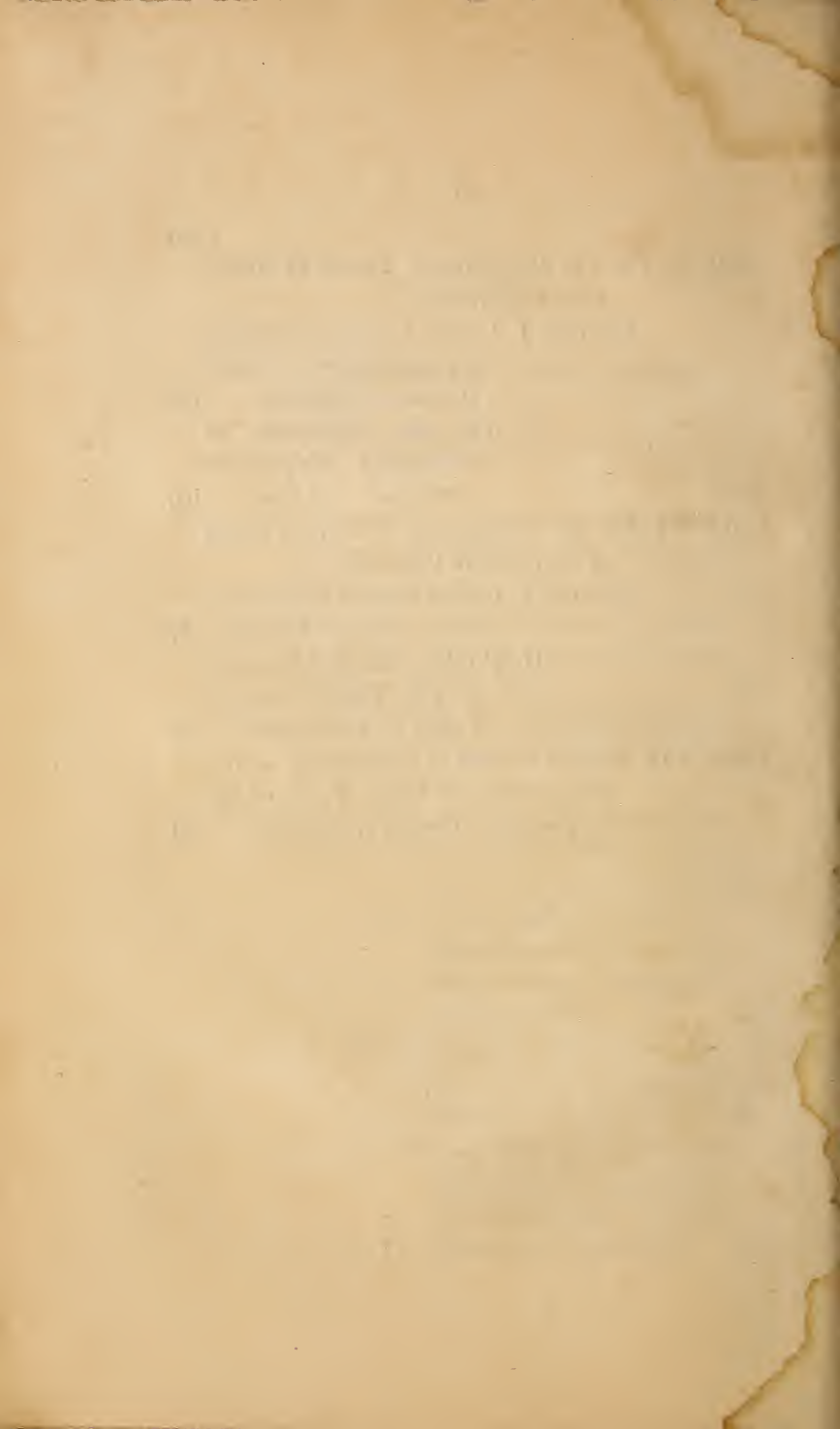
	PAGE
CHAP. I. On Contingency or External Relation . .	1
II. On Fixed Position, Form, and Measurement	5
III. On Continuity and Abstract Rule . . .	9
IV. On Contrast, or Difference of Rule .	13
V. On Definition, or the Limitation of Abstract Rules	16
VI. On Indefinite Volume or Diffusion .	20
VII. On Terminated Volume . . .	24
VIII. On the Prospective Relation of Solid Figure to Motion	28
IX. On acquired Motion	31
X. On Growing, or the Assumption of Extraneous Forces	36
XI. On Composition	40
XII. On Comprehension and Imagination .	46

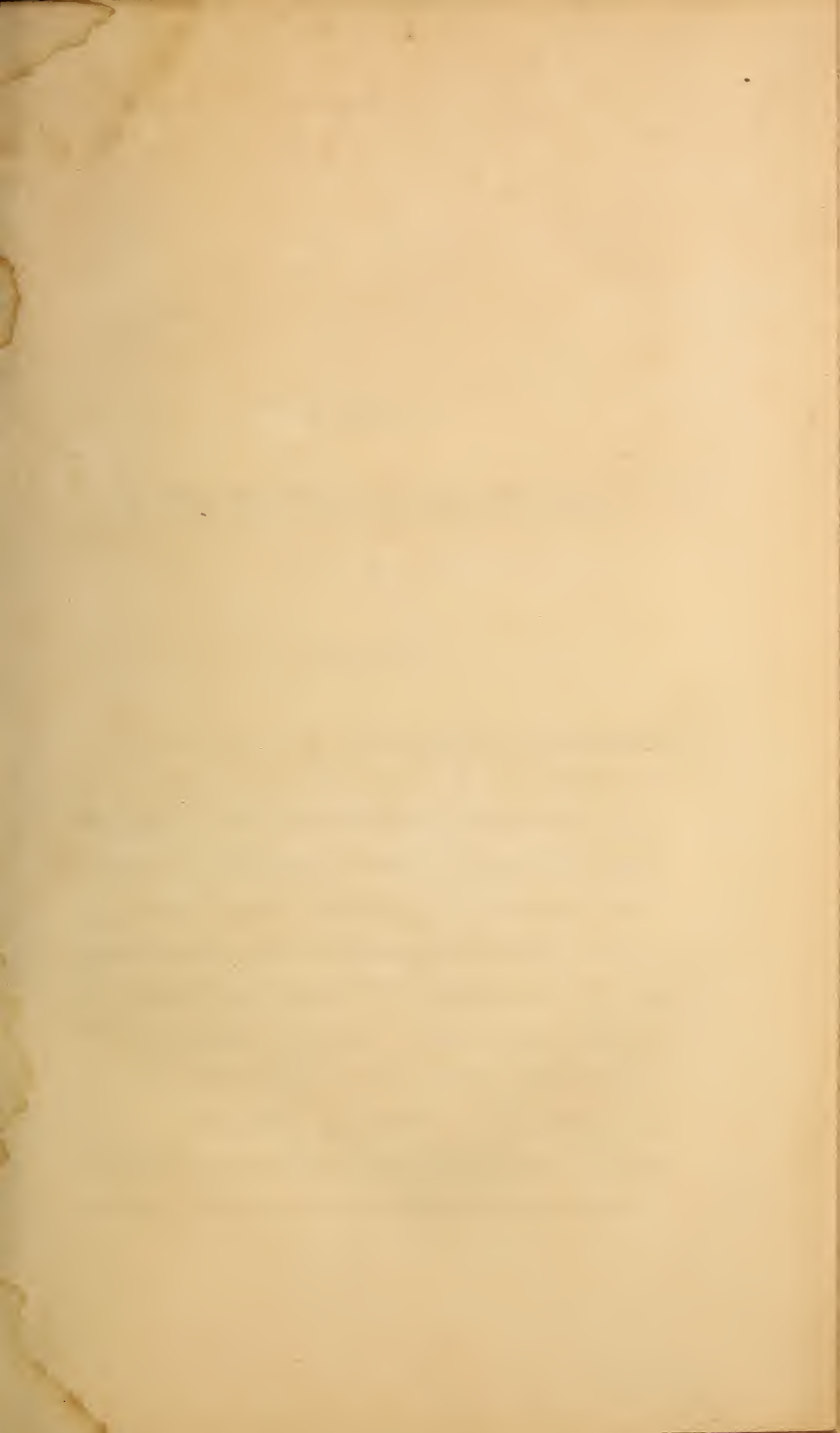
PART II.

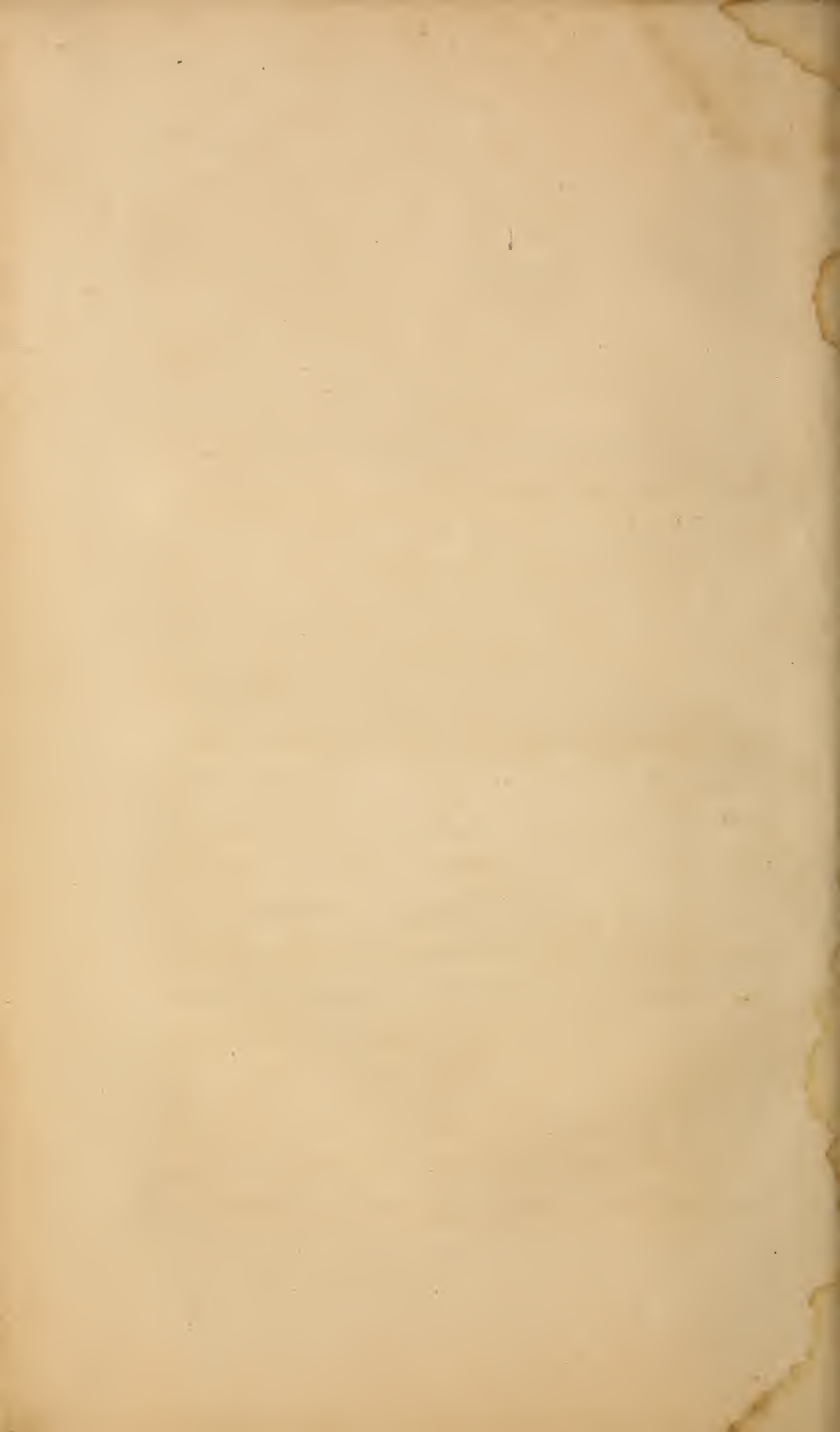
ON THE MODES OF COMPOSITION.

	PAGE
CHAP. I. On the Powers of Gradation, or the Comparison of different Finite Series. <i>Orion or Bacchus</i>	49
II. On the Power of Searching out the different Forms of the Saturnian Hyperbola. <i>Hercules and the Muses</i>	60
III. On the Application of Straight Lines to the Series of Hyperbolic Branches. <i>Pan or Æsculapius</i>	67
IV. On the Retrogressions of the Hyperbola.	
SECTION I. On the Infinitude of a single Curve. <i>Pelops or Proserpina</i>	72
II. On a Retrogressive Series of Branches, or the Power of Search into Antiquities. <i>Pluto or Adonis</i>	81
III. On the Evolution of Diminishing Hyperbolic Branches. <i>Perseus</i>	88
IV. On the Retrogression of the Hyperbola through a Series of Inconsecutive Forms. <i>Vertumnus or the Fates</i>	94

	PAGE
CHAP. V. On the Interminable Forms of Transverse Progression.	
SECTION I. On the Powers of Continuity and Syntax. <i>Erichthonius or Hyperion</i> .	100
II. On the Deduction of Composite Hyperbolic Branches. <i>Theseus</i> .	107
CHAP. VI. On the Progression of Double Series of Hyperbolic Branches.	
SECTION I. On the Powers of Fluctuation. <i>Pollux or Eridanus</i>	117
II. On the continued Relation of two Simple Curves. <i>Castor or Bellerophon</i>	123
CHAP. VII. On the Powers of Collocation, or the Distribution of Finite Parts of the Hyperbola. <i>Geryon or Silvanus</i> .	131







PART I.

ON THE MATHEMATICAL ELEMENTS.

CHAP. I.

ON CONTINGENCY, OR EXTERNAL RELATION.

FROM the entire and absolute sameness of a single position no other mathematical idea is generated ; and, therefore, the difference of positions must be ranked as the first creative power, since it generates something else, namely, relation passing to and fro between the positions. This cannot be fixed or made perceptible to the senses ; but its existence is recognised by intellect. The contrariety of points is the origin of adventitiousness ; because external relation is not implied in the nature of

either point taken separately. To the god *Ūranus* or *Cælus*, among the eldest deities, was attributed the power of connecting all things; and his character signified merely relation. To the same power must also be ascribed the simplest and most original idea of motion, as the transition between different points; and a moving body partakes of the character of *Cælus*, by producing a connexion between those places which it leaves and those into which it comes. From motion comes fortune, which belongs to existences capable of changing their places, and creating novelty of circumstances. Among the twelve chief heathen divinities, this power belonged to *Juno*; and, among the tribes of *Israel*, the same character seems to have belonged to the tribe descended from *Reuben*, the eldest son of *Jacob*. The power of *Juno*, originating from the difference of units, becomes also the same as accession, and may be extended to the increase of numbers by continued accession from without; because her power, being that of adventitiousness, can never be supposed to stand still, or be limited to any particular number. The arithmetical series follows out the differences of units or equal num-

bers, and assumes a new proportion at each step. To Juno must also be ascribed the power of fluctuation, as arising from the alteration of distances ; because the relation of points or units continues to subsist, however much their distances may be changed, or into whatever order they be thrown. But any form, having a certain order and arrangement of parts, cannot be thus shaken or decomposed without losing its identity. The kind of feeling, therefore, which must be ascribed to Juno is that of temporary states and fluctuations. Thus, the dancing of Salome procured from Herod a boon which occasioned the decapitation of St John the Baptist. To Juno, besides the fluctuations of the feelings, may also be ascribed pilgrimage in regard to the meeting of external novelty. Actuated by a strong feeling of the changeableness of the world, and its incessant agitation, the ancient astrologers betook themselves to watch the revolutions of the planets, and observe their conjunctions, of which they endeavoured to find the connexion with the fortunes of mankind in the world beneath. To the same class with Cælus and Juno may be referred the muse Urania. Juno was also my-

thologically identified with the air, as the element most capable of mutability and agitation. From this power, however, the deduction of mathematical elements must begin.

CHAP. II.

ON FIXED POSITION, FORM, AND MEASUREMENT.

It is evident that more than two points, viewed together, may either be considered as capable of freely changing their order and distances, or they may be fixed to certain places, by having their distances compared, and a certain proportion established among these distances. From the comparison of distances, therefore, comes fixed position. One point may revolve round another and preserve always the same distance; but a third point cannot revolve round one of the two first, without changing the proportion of the distances between it and the other two. The comparison and proportion of distances is also the origin of form; although the different measurements which meet in one form may be innumerable. Among the twelve chief heathen divinities, form and fixed position was signified in the character of Jupiter;

who, in reference to fixed position, was supposed to let down from his throne a great golden chain, on which all things depended. In another point of view, Jupiter, being only the offspring of Saturn and Rhea, was of more recent birth than many other divinities known in mythology; but, from his character relating to a centre, he was hypothetically called the father of gods and men. Among the twelve tribes of Judea, this power must have belonged to Simeon. In this power also the number of points employed must be supposed to be limited; because the characteristic of Jupiter is stability, which rejects the change produced by incessant external accession when continued, as in the power of Juno. And the only kind of flow or progression, which is appropriate to a system of fixed proportions, is that which takes place in time; as when a certain form of rhythmus or musical measure, having been gone through, is again begun, and repeated for ever in a circle. Thus, in poetry, each stanza, or sometimes each verse, begins the same measure anew; and, in this kind of progression, no new form is discovered, except in the increase of the whole

series. The simple inhabitants of a pastoral country are averse to think that there can be any advantage not implied in the mode of existence which they already enjoy ; and thus they are induced to harden themselves in a sort of stupidity, and to reject all new affections. The power of Jupiter must ever be opposed to accident and fluctuation, and to every sort of feeling not resulting from what is already possessed ; and, on the contrary, it rejoices in seeing the same cycle of events repeated. To the same class with Jupiter must also be referred the three original muses, who were the daughters of Cælus and Terra, and, according to ancient authors, were known before the nine daughters of Jupiter and Mnemosyne. The three earlier muses may have signified the three generic powers either of musical rhythmus or verse ; namely, first, the proportion of quantity, such as that of a long to a short ; secondly, their order or distribution ; and, thirdly, their number, from whence the extent of the whole form or measure to which they belong. To Jupiter must also be ascribed the power of acceleration and of producing the same form on a different scale ; for it is evident

that a system of points, having established distances, is capable of revolution round any one of the points assumed as a centre. Those points, which have unequal distances from it, will revolve in concentric circles, and so trace the same form on different scales ; and the power of acceleration results from the more distant points being forced to revolve with the greater speed, to preserve their position or distance in regard to those nearer the centre. To the power of Jupiter, therefore, may be referred the lower kinds of mental vehemence and impetuosity. Among tribes of barbarians, the feeling of rotatory motion is used for every purpose, whether of religion or of war ; and, being the lowest sort of mental enjoyment, it is given as a free inheritance to all created beings. To the same class with Jupiter may also be referred the goddess Themis, that is justice, which is equality, the simplest kind of proportion found by the comparison of quantities. Revenge is counted the chief virtue among natures which are fixed, and incapable of progressive change or expansion.

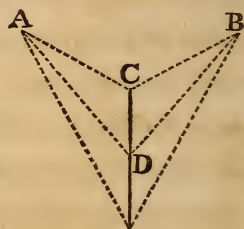
CHAP. III.

ON CONTINUITY AND ABSTRACT RULE.

THE third mathematical element is continuity, by which is meant not relation passing to and fro between different points, but a line, whose parts are fixed and remain in their places, and whose continuity may be prolonged to any extent. A line, however, can never be composed of points, for these either must be separated by some distance, or they must become merged in one, without extension. A line is that which has fixed intermediate parts extending through all the distance between any two points contained in it ; but, at the same time, a line has in itself a continued succession of points which remain in their places ; and hence it becomes like a list or catalogue of points bound together by perfect continuity, every intermediate part of the line being as stable as the rest. Nevertheless, the nature of continuity is a

mystery which can never be understood. But it is evident that the extension or production of a line must begin from a fixed point, which is first found by the power of Jupiter. The first form of continuity must be a straight line; of which the definition is, that it has equal relations on both sides.

Supposing two positions (A and B) to be assumed equally distant from the fixed point (C) from whence the line begins; and, if the line, as it is drawn out, preserves always an equality in its two distances



(AD and BD) from these two lateral points (A and B) then it will be a straight line, and may be prolonged as such to any extent. But this also gives the first and simplest idea of an abstract rule prolonged and carried into successive instances; because the two lateral distances, though continually increasing and changing as the line extends, retain always the same proportion to each other; but their proportion to the extent of the line is continually diminishing. Among the twelve chief heathen divinities, continuity, or ab-

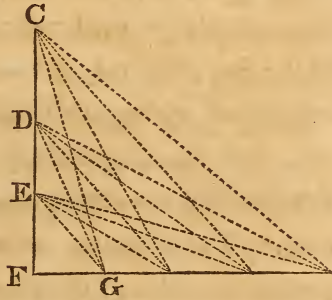
stract rule, was represented by Apollo, whose chariot was drawn through the sky by celestial steeds; for the mystery of continuity relates to the yoking of different points together; and the point which advances is bound to that which is thrown behind, in the same manner that the horses are bound to the car which they draw. This power may also be considered in another point of view, for each side of a line has relation to any point situated out of the line, and lying on that side. This generates the first idea of relation spreading into breadth, like that of a plane, because the relations of the extraneous point (B) to the whole of the points situated in the line, are blended into one Maya, or ideal extension having breadth. Maya is the word used by the Indians to signify mental creation or illusion. This Maya was probably signified in Latona, whose characteristic, according to Hesiod, was smoothness and placidity. The lateral extension changes its boundaries as the line extends, and exhibits form in a state of transition through successive instances all belonging to the same rule. This elementary power must have belonged, among the tribes of

Israel, to the sons of Levi. Continuity is also the same as faithful tradition, which transmits what has been heard, without departing from the method which has been begun. Thus, the hard and accurate style used by the Egyptian carvers, in tracing the forms of animals, shews a rigid adherence to tradition; and such is the strength and certainty which exists in the joints of the crocodile of the Nile. The name Phœbus, in Greek signifying pure, applies well to the nature of abstract rule, which, in ideal generation, admits of no exceptions; for either the same principle is carried on throughout, or that rule is abandoned, and some other substituted in its place.

CHAP. IV.

ON CONTRAST OR DIFFERENCE OF RULE.

THE fourth mathematical element is an angle which causes the line to assume a new direction, by which it comes to have a lateral relation to the previous part of the line (CF) ; and, therefore, draws forth a maya as to each different point (C, D, E,) situated in that part. In each of these mayas, the lateral distance



(EG and DG and CG) increases according to a different rate, and exemplifies a different rule ; and the power of angle, therefore, becomes the same as the contrast of different rules or methods carried on at the same time, the reflected line (FG) being capable of prolongation any extent. Among

the twelve chief heathen divinities, the power of angle was represented by Diana, the goddess of the moon, which sends back reflected light; and, among the tribes of Israel, the same power must have been represented by Judah, the tribe to which belonged superiority and dominion over all the rest. The characteristic of this elementary power is, that, without the aid of any extraneous point not contained in its own lines, it is capable of drawing forth an infinite number of mayas, or different forms of flowing extension within itself; because these are always produced between the two parts of the line; but only the second part of the line is capable of prolongation, the prior part standing still, and affording fixed points, from whence the different mayas or rules are drawn forth to infinitude. These pursue each other, from whence perhaps the idea of the chase attributed to Diana. But the flowing extension altogether, which is included in the form of the angle, was perhaps signified in the character of Maia, and the Pleiades, the daughters of Atlas, who, being changed into stars, were made to shed a sweet and beneficial influence. Maia was called bountiful, and her

name signifies also a midwife or nurse, which applies well to the origin and increase of subject existence in the angle, one side of which is extending. It is evident, however, that one of the mayas which are drawn forth must be outermost and must outstrip all the rest. For this reason, the elementary power of Diana corresponds with the nature of pride, and the wish to be highest, or to achieve the most. Such was the scriptural character of Lucifer, the son of the morning; and, as will afterwards be shewn, such was likewise the mythological character of Hercules, as belonging to the mode of composition which has most likeness to this elementary power. From possessing in itself the continuance of innumerable rules, which are all different, the elementary power of Diana becomes the same as power over the different modes of action, to choose among them, or contrast them.

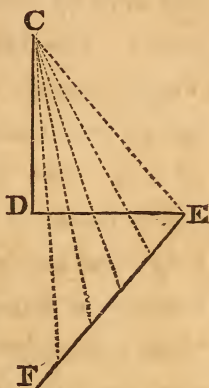
CHAP. V.

ON DEFINITION, OR THE LIMITATION OF
ABSTRACT RULES.

THE fifth elementary power is the continuation of the same line through successive angles, by which the unlimited continuation of the same rules or mayas is prevented. By a second angle there is intercepted an intermediate portion of line which can extend its own mayas no farther. The second angle, to shew the power of alternation which belongs to it, must be supposed to be formed on the other side of the line ; and the succession of angles so alternating may be continued to infinitude. Among the twelve chief heathen divinities this power belonged to Vulcan, and is the same as the power of definition, because it relates to what is

situated on both sides of a line or boundary.

Thus, in a series of alternating angles, any portion of line (EF) draws forth a maya of its own, in relation to the point (C) at the beginning of all the line; and this maya, crossing any intermediate portion of line (DE) is found on both sides of it, and so becomes like the power of being present on both sides of a



boundary, and so perceiving both what is contained within it and also what is situated beyond it, and every successive portion of line draws forth its own peculiar mayas or rules, but the whole series of them is comprehended in the general power of Vulcan. Among the twelve tribes of Israel this power must have belonged to Zabulon. By two or more angles the continuation of a straight line is also capable of returning to a former point in its own course, and so including a space or forming a terminated figure, which, in the simplest case, would be a triangle. The

power of Jupiter also marks off a space or figure, but only by relations alternating between distant points. The kind of boundary which belongs to Vulcan consists of line or continuous extension having everywhere a series of fixed points contained in it. The series of alternating angles belonging to Vulcan is the form which appears in lightning; and he was also the god of fire, and the fabricator of thunderbolts. A second angle prevents the continuation of the flowing mayas which were generated in the first angle, and which depended upon the prolongation of the second part of the line, from whence the relation of Vulcan to halting or stopping, and shewing deficiency, which is the source of the buffoonery ascribed to him. A triangular figure encloses the flowing mayas altogether within certain boundaries; and the same is the case with any other terminated figure, whatever be its form or the number of its sides. The power of Vulcan is also the same as the end of line or of continuity. Without such limitation, there could be no particular continuity apart from other things; therefore, to Vulcan belongs the

power of separating those qualities which are contained in a definition from those qualities which are left out or denied by its terms.

CHAP VI.

ON INDEFINITE VOLUME OR DIFFUSION.

THE sixth mathematical element is the power of rising through the difference of planes, from whence comes the generation of volume. If the power of Vulcan, or terminated figure, be assumed for the basis; and if, from one of its angles, as a fixed point, a new line be made to rise, leaving the plane below, it will draw forth two new mayas or surfaces, beginning from the two sides of the angle which is left beneath. These two surfaces follow the extension of the rising line, and, between them, will be generated the first idea of bulk or volume, having the original terminated figure for its basis, and having one of the rising planes for its boundary, on each side; but its increase altogether accompanies the prolongation of the rising line. Among the twelve chief heathen

divinities this power was represented by Neptune ; and, among the tribes of Israel, the same character must have belonged to Issachar. The birth of volume is like nature, or the first diffusion of the waters of chaos, which were subject material, and, at first, had nothing to prevent them from spreading indefinitely. Volume is only a secondary kind of maya, and differs from the first in its degree of affinity to lines, in which affinity it is altogether inferior to the first. The maya of Neptune is not produced under lines, but only under planes, which are themselves a kind of ideal creation ; and volume is therefore a subject existence produced under subject existence. According to the philosophy of the Indians, that which constitutes the nature of material substance is altogether an illusion, and has no real existence. In a plane, all the relations are clear and certain, because they refer to fixed points, situated in lines, and having an order or series ; but, in the maya of Neptune or volume, the internal relations are of a different nature, because no fixed points can be found in the planes between which they are generated. Hence

the character of Proteus, as a sort of illusive and unintelligible nature. Nevertheless, to the utmost height of the line of Neptune, there must be found a succession of fixed points, each of which has its own maya of volume in relation to the plane below ; but all these forms of volume are blended into one, which is continually increased as the line ascends. This power is the ideal source of melancholy, and obsuration from the intermediate parts of volume, as in the depths of the ocean ; but Neptune was also reckoned the god of intellect. A certain character of darkness and native sadness must be ascribed to all the marine powers, such as Oceanus, Tethys, Doris and her nymphs accustomed to twilight under the waves, and rejoicing in the obscurity of clouds and showers. Nevertheless there must always be a highest or outermost part of volume not blended with any of the mayas beneath ; and thus Neptune was conceived as generally driving his chariot, in daylight, over the surface of the brine, while the melancholy of the ocean was confined to the depths beneath. The power of Neptune is also the origin

of the form given to spires and pinnacles which are placed on the highest parts of buildings, and meant to appear as if rising into the sky, and capable of unlimited ascent.

CHAP. VII.

ON TERMINATED VOLUME.

THE seventh mathematical element is the power of separating the different forms of volume ; for, if the line of Neptune be made to form an angle, the next point in it will produce a maya of volume, which no longer entirely absorbs those beneath, but, having its apex situated in a new line, leaves the previous form of volume partially uncovered. This is like the appearance of dry land ; and every successive point, in the new line, becomes the apex of another form of volume, partially separated from the rest. Thus, by the second part of the line, there is produced a ridge of pyramidal mayas, having their forms partially separated from each other, and no longer capable of being lost in the general increase of volume. And, if the rising line be made to pass through other angles, it will only produce farther exemplifications of the same

principle. But, if the line be made to descend and return to the original plane of Vulcan, and be fastened to some point in the lines which form its limits, then there will be produced a terminated solid, incapable of farther increase, and having, on all sides, planes which enclose the mayas of volume within. This power of solidity belonged to Vesta, among the twelve chief heathen divinities; and, among the tribes of Israel, the same character must have belonged to Dan. The line of Neptune, after forming an angle, which should be on the other side of the line, to shew its power of alternation, may be called the line of Vesta; and in relation to the previous part of the same line, it draws forth a plane of its own, at the sides of which the two other planes belonging to each apex are joined.

These are left by twos, as relating to a fixed point for their apex; but the middle plane produced by the line if Vesta continues to extend, till another angle be formed at which that ridge terminates, and another begins. Farther, the sides of these ridges will not be uniform surfaces, but will consist of two different planes diagonally joined. The ge-

neration of this figure is regular and beautiful, but cannot easily be expressed by language ; nor could it well be represented by lines drawn on a plane.

Another characteristic by which the power of Vesta is distinguished from that of Neptune is, that every point in the line of Vesta has two planes opposite to it, in relation to each of which it produces a maya of volume ; so this power becomes the same as the coincidence of different mayas of volume in regard to the same point as the apex ; and this is an union which can never happen by the power of Neptune. The line of Ops or Vesta is the power of separating the forms of volume, and finding out new examples of terminated solids or individual natures, the varieties of which it may explore to infinitude.

It is evident that solids, when complete in themselves, and externally separated from others, are capable of relative motion, and of freely changing their places. The name of Rhea, in Greek *Ρηα*, signifying “ flowing,” may refer to the flowing of multitudes which are capable of freely changing their places ; as is exemplified in a shoal of fishes moving through the waters. The external rela-

tion of solids to each other also gives birth to a new kind of maya, alternating between them, and having relation to their figures and sizes. This may be called the maya of Faunus, a rural power belonging to the earth.

CHAP. VIII.

ON THE PROSPECTIVE RELATION OF SOLID
FIGURE TO MOTION.

THE eighth mathematical element is the relation of the form of a solid to the various courses through which it might move; and this is the source of the infinite extension of parallels; because whenever a solid begins to move, it must trace parallel lines, which are the sides of its course, if it continue to present the same front in moving. The idea of parallel lines situated in a plane is first found belonging to the power of Vulcan. But, when that which moves is a solid, the parallels which it draws are not situated in one plane, but in every plane; and the course which the solid traces is therefore also solid. But this power assumes another form; because, even when the solid is at rest, it has what may be called an anticipation, or prospective view, of all the solid courses through

which it might move ; but, from being solid, they are blended together at their origin, and still continue partially to retain their union as they diverge, altogether forming one maya, which is that of the courses through which the solid might move. Among the twelve chief heathen divinities this power was represented by Mars ; and among the tribes of Israel it must have belonged to Gad. In every solid, although the number of sides be limited, there is an infinite multiplicity of aspects, to each of which belongs a solid course, in the form of parallels extending to infinitude ; but it is evident that every course must have a different solid form, according to the aspect from whence it proceeds. To the power of Mars belongs a sentiment of freedom, might, and power, extending far beyond the local existence of the individual ; but this is a feeling which might also hypothetically belong to every particle among the sands of the sea. The union of the different courses must be most dense at first ; and, as they diverge and separate, the general maya, which they form, becomes rarer, like an aerial haze departing from the solid.

The elementary power of Mars is the beginning

of a new series of powers all belonging to individual being; because all of them are produced from the nature of courses which originate from solidity, or the power of Vesta. The maya of Mars, however, is distinguished from any former maya by the characteristic of not being produced under lines or planes already extended; for it is only prospective or potential.

CHAP IX.

ON ACQUIRED MOTION.

THE ninth mathematical element is the generation of the parabola from the bending of parallel courses, since these cannot be prolonged without encountering other solids; as every solid has relation not merely to all the courses through which it might move, but also to all the opposition which it would meet with in them; and from hence, in abstract idea, is the beginning of gravitation. For the sake of illustration, let it be considered that, if two parallel lines be required to bend, and yet to retain the same distance between them, it is evident they must turn otherwise than by an angle, in which there will always be an oblique distance between the lines. Therefore it becomes necessary that the lines assume the form of two parallel curves, one of which, being the outer, must be the larger. For this purpose one of the lines must borrow and

gain from the other a continued increase of extension ; but, if the outer line, at first, were to begin suddenly by borrowing some certain quantity, the curvature would begin suddenly, without any previous gradations between it and the original straightness of the lines, or their equality of proportion ; and if the borrowing were continued at the same rate, the two lines would bend together as the circumferences of a larger and smaller circle, and consequently would be finite. But this mode of beginning and continuing the curve is hypothetically impossible, because the first beginning of change of proportion between the straight lines must always have been infinitely remote, and in the least possible degree.

The outer line, therefore, must have been gaining extension from the other, at a rate always increasing ; and the outer line is supposed in these two curves to be found borrowing according to the same proportion as exists in the decreasing series of numbers, or their approach to unity by continued diminution as in the series five, four, three, two, one ; and this is the kind of proportion which is expressed in the parabola. In this

mode of exhaustion, the unit which is taken away, at each step, becomess always a greater quantity in proportion to the number which remains to be exhausted. But if this principle be carried back towards the beginning of the curve, it would make the first change of proportion infinitely remote, and incapable of being found. Thus, if the outer line, in a certain portion of the course, had been gaining from the inner line one-seventeenth part, and had become to it as eighteen or sixteen ; and if, in the next preceding part, (in which the length of the outer and inner lines taken together had the same total amount), the outer line had been borrowing only one-eighteenth part, and had become to the inner line as nineteen to seventeen ; then, in the part still anterior to that, the outer line would have borrowed only one-nineteenth part from the inner, and would have become to it as twenty to eighteen. Thus the difference becomes always less ; and this progressive refinement or change of proportion is capable of being pursued for ever, and is expressed in the proportions assumed by the parabola, when retraced towards its origin, which can never

CHAP. X.

ON GROWING, OR THE ASSUMPTION OF
EXTRANEIOUS FORCES.

THE tenth mathematical element is the generation of the hyperbola from the assumption of an extraneous force which, being united or blended with those already operating, gives birth to a new form. If, at any part in the united courses of the parabola, another straight course, or form of Mars, be applied, and made to take a share of curvature from the two courses which are already bending in the parabola, so as to bend along with them, and enable all the three to proceed together as parallels united in one curve; in this case the newly-added course must communicate part of its straightness to the two former, and must receive from them part of their curvature. This produces an evolving form which is the hyperbola, and which is the original form of support, or nourishment, or vegetation,

which is from the assumption of extraneous forces. That which characterizes this elementary power is the sharing of the curvature among the courses which are united as parallels. Any quantity, continually lessened by taking away the same part from the amount which remains, will give a series of proportionals in continued diminution; and this is the rule or proportion which is expressed in the decreasing curvature of the hyperbola. Thus if, to the two parallel courses of the parabola, another single course be added and made to extend along with them, assuming a portion of their curvature, its share will be always one-third of the curvature which remains to be exhausted. Therefore, after each farther extension of the courses through another equal length, the quantity of curvature left will be only two-thirds of what it was before. It would first be as two-thirds of the original quantity, then as two-ninths, and then as two twenty-sevenths, and so on in continued proportion. The hyperbola also in expanding repeats the same form of curvature in lengths which increase in continued proportion. Thus, if a certain form were found in a length which was as three;

and if the same form were next found, on a larger scale, in a length which was to the former as nine to three ; then the same form would next be found, on a still larger scale, in a length which was, to the preceding, as twenty-seven to nine ; and so on in continued proportion. The hyperbola, therefore, corresponds with the geometrical series of numbers. Among the twelve chief heathen divinities this power was represented by Ceres, the goddess of vegetation ; and among the tribes of Israel the same character must have belonged to Naphthali. When the decrease of curvature is slow, the hyperbola evolves as a spiral ; but, in other instances, it takes place so rapidly that the curve forms no circumvolutions, but is capable of extending beside an infinite straight line placed beside it as an asymptote. This is the form of the hyperbola found by that section of the cone. It may easily be shewn that, besides the parabola and hyperbola, there can be no other simple and continuous forms of curves expressing change of quantity ; because quantity can increase or diminish only in two continuous manners ; namely, first according to the same proportion which is expressed in an arithme-

tical series, and which belongs to the parabola ; and, secondly, according to the proportion which is expressed in a geometrical series, and which belongs to the hyperbola. To Ceres must be ascribed elasticity and expansion ; and the powers of recoil, which belong to elementary particles, always operate according to a series of proportionals. The hyperbola is the last continuous line found in the mathematical deduction of forms ; and there is no end to its extension ; for, if there remains any curvature at all in a line, it can never be exhausted, however long it may continue to be shared by another line extending along with it as a parallel, and adopting a form, in which their qualities unite. But the outer and inner lines or courses, in the hyperbola, are different curves, otherwise they could not be parallel ; and this is proved by the difference of the forms of parallel ellipses, traced within each other. The same hyperbola traced on a larger scale would diverge.

CHAP. XI.

ON COMPOSITION.

THE eleventh mathematical element is that from whence originates the power of composition ; because, the eleventh element is not a continuous form generated according to one rule, but includes in itself the juncture of two forms extended according to different rules. If, at any part in the first hyperbola, another straight course, or power of Mars, be added, and made to proceed along with the first three united courses, as an additional power taking a share of the original curvature, it is evident that, after this addition, the hyperbola will not continue to extend according to the same rule, but will start off in a new direction, and diminish its curvature more rapidly than before ; because, after the juncture, the power which is sharing or diminishing the original curvature has become twice as much as before. A

second form of the hyperbola will therefore be generated, departing, at a crisis or juncture, from what would have been the continuation of the first curve. This shift or change of direction will be towards the outer side of the curve ; but the concavities of both the first and second parts will still be towards the same side. The share of curvature assumed by the first-added parallel was one-third ; but the first form of the curve being left, the parallel courses are continued into another form, in which the quantity of curvature assumed by the added courses becomes one-half ; and, therefore, after each farther equal extension of the four parallel courses together, the curvature left is only one-half of what it was before, and thus the quantity diminishes according to continued proportion in the second curve, as in the first, but according to a different rate. In this form are found two different qualities of curve, their partition being marked by a curve, angle, or juncture, at the place where the hyperbola branches off, and assumes a new direction. Among the twelve chief heathen divinities, this power was represented by Minerva ; and among the tribes of Israel, the same power

must have belonged to Joseph. From containing in itself the juncture of forms essentially different, this elementary power the origin of composition, which is the freedom of prolonging the same continuity according to a rule different from that which has been begun. The ellipsis is an example of composition; because it is a figure not found by the continuation of a single curve, but composed of four similar parts joined together in four inverted positions; and only one-fourth part of it is continuous, being the same as the hyperbola, in abstract principle. By the power of Minerva, the prolongation of a line is enabled to change, at once, from any quality of form to another; and, in flowing lines, the junctures or crises cannot be easily detected. The elementary parts of form are capable of extension only according to one rule; and the minutest parts of every line must be mathematical forms; because a line cannot consist entirely of junctures or transitions from one kind of extension to another: and if there be any portion, however minute, in which the mode of extension does not change, that portion must be a mathematical form which is part

either of a circle, a straight line, an angle, a parabola, or an hyperbola; since every rule in a plane must produce some one of these. To Minerva, therefore, must be ascribed the power of elegance, or choice and freedom of transition from one principle to another. Considered as an element found by continued deduction, Minerva is a second form of Ceres or growing, and is produced from the assumption of a second extraneous force, after the power of the first extraneous force had been for some time exemplified. But the essence of this element is the juncture which it includes, and which necessarily implies that both the first and second curves must appear in the power of Minerva, when it is viewed as a single element, apart from others.

CHAP. XII.

ON COMPREHENSION AND IMAGINATION.

THE twelfth and last element, found by continued deduction, is a general curve, comprehending a succession of different hyperbolic parts. For, if to the second hyperbola, which belongs to Minerva, a third extraneous power or parallel course be added, it will only have the effect of producing a third hyperbola, which again starts off in a new direction, and exhibits a new quality of curve, constituting the third branch; and, if farther additional forces be successively added, they will only have the effect of producing a succession of hyperbolic forms, changing their quality in continued gradation; and, having the united courses of the original hyperbola continued through the whole of them; but with the addition of one more parallel course added at the beginning of each successive

branch. And if the additions be made at such points as to have always equal lengths of course between them, then all the points or junctures, at the inner side, will be situated in an imaginary curve, which is also an evolving hyperbola, tending in the same general direction as the particular branches, and having its convexity to the same side as theirs. This curve is not actually traced, but derives an ideal existence from the nature of the comprehending form. This elementary power was represented by Mercury, among the twelve chief heathen divinities; and, among the tribes of Israel, the same character must have belonged to Benjamin. This is the last elementary power which is found by continued deduction; since the successive assumptions of extraneous forces will produce no other form, although they be continued to infinitude. To express the relation of Mercury to number it was allegorically said that, while he was yet an infant, Juno had been induced to suckle him; but, discovering that he was the son of Maia, she put him away; and, the milk flowing from his lips through the celestial regions, produced the milky-way. The share of curvature

assumed in the third hyperbolic branch is three-fifths ; in the fourth branch, four-sixths ; in the fifth branch, five-sevenths ; and so on, the difference of quality in each successive branch becoming always more refined. Mercury was called the interpreter, because of the power of an intermediate branch intervening between two others, and connecting them, although they are entirely different in quality. To Mercury may also be ascribed the form of the syllogism ; in which the minor, or second proposition, connects the first proposition with the conclusion. Three successive branches of the hyperbola are a mathematical syllogism, in which the original parallel courses are carried through an intermediate curve, and transferred into a third curve, of which the quality is deducible from the first. Thus, by reasoning, the force of an acknowledged proposition is carried into other applications. But the characteristic of this elementary power is the comprehension of particular forms in a general one ; which may be called the Saturnian hyperbola ; because of its fulness of parts, and because of the imputed character of time, which is poetically said to swallow up all

particular forms of existence. The Saturnian hyperbola, besides occupying a real place by the successive forms contained in it, has also reference to a series of points situated in a totally different curve ; but the relations between these points would be direct, and like straight lines connecting them, and, therefore, would not in reality trace the curve ; which, nevertheless, is traced by the power of imagination ; and, therefore, to Mercury belongs a new kind of maya or ideal creation, different from any other ; because it is not produced by the direct relations between points existing in any form really extended. Thus, the Saturnian hyperbola teaches the mind to create relations which are not there ; and this is the nature of fancy or conception. The twelfth element, therefore, has two different forms, namely, that which has real extension and place, and that which is only imagined or conceived. Some of the ancients ascribed to Mercury the invention of letters, and said that he had learnt them from seeing cranes tracing figures in the air by their flight ; and it is evident that these forms must have been dis-

covered by conceiving the relation of the crane to places in which it no longer was, and which were beyond its real or local extension.

PART II.

ON THE MODES OF COMPOSITION.

CHAP. I.

ON THE POWERS OF GRADATION, OR THE COMPARISON OF DIFFERENT FINITE SERIES.

Orion or Bacchus.

THE last of the simple elements is the Saturnian hyperbola, which comprehends a series of different branches all included in one general curve. Beyond this no other elementary power is found. But, by resorting to composition, a new series of infinite forms is discovered. Composition must begin from the application of the power of Juno, which is the first.

If the power of Juno, or alternation, be applied to the Saturnian hyperbola, it can have no other

effect than to make it alternate, that is to say, to make each branch cross itself, and so change its direction to the other side. But this change of direction is balanced or corrected by the succeeding branch also crossing itself and again extending in the opposite direction; so that the whole series, instead of bending as a general curve, is forced to stretch forward and assume a form somewhat like that of alternating angles. To this form, however, there is a limit; because the breadth or thickness of each branch is increased by another parallel course added to it; and the thickness of a single branch must at last become greater than will permit of its crossing. Thus, after a certain number of branches have alternated, the transverse progression comes to an end, and a limited series is found. If the series of branches be farther prolonged, they must resume the original form of the Saturnian hyperbola.

The power of Juno, when employed alone in composition, could not produce any infinite progression; and the second power, which is Jupiter, must therefore be applied. Jupiter is the repetition of an identical form on a smaller scale, as in concentric circles. If this power be applied to the succession of hyperbolic branches, it will have the effect of transposing the remainder of it into a smaller scale, in which the same deduction is continued. For it is evident that, on whatever scale

an hyperbolic form is produced, it remains the same as to quality, and has still the same properties as a particular curve.

Suppose the transposition to be into a scale one-third of the former, then the breadth of a single branch will have become only one-third of what it was before ; but, if its length be drawn out to the same extent as formerly (as it must be to allow the investigation to proceed), then there will be a renewed freedom of making each branch cross and the series resume the transverse mode of progression ; because the thickness of a single branch has now become less in proportion to its length ; and the thickness will be more slowly increased than formerly, because the same change of scale must be applied to the parallel courses which are added to the successive branches, and by which their thickness is increased. Therefore the new transverse progression will admit of a greater number of branches than before, but it will also come to an end, and will constitute another finite series. After which, a new transposition into a scale of one-third must be again resorted to ; and, the length of a single branch, being drawn out to the same length as before, there will be a renewed freedom of transverse progression, which will also come to an end, and constitute another finite series still more extensive than the second. After which another transposition must be again resorted to ;

and so on to infinitude. In each new transverse progression the number of branches will be greater in continued proportion ; because the rate of the increase made to the thickness of a single branch is changed after each transposition, and is diminished in continued proportion ; so that the number of steps becomes greater, and the exhaustion of the whole series slower.

The crossing of each branch within itself is the cause of measuring and intersecting the curve by other parallel lines going through it. These are the prolongation of the same curve, but being a different part, their form is different from that of the lines which they cross. The multiplicity of forms in the intersection is increased in each new branch by another added parallel. This mode of composition is the same as internal sensation or the consciousness of form ; and among the ancients it was signified in the character of Bacchus ; because the effect of the vine is to produce an increased power of mental sensation, which is the same as the knowledge of form. In another point of view, this mode of composition was probably signified in Orion, the hero of the chase, or the power of exhausting intermediate distances. But this power, in effect, becomes the same as the comparison of different modes of gradation, or the sense of beauty in finite portions of continuity ; because the transverse mode of progression is the

same as the sense of continuity which binds contrary points together and blends them into one form; as each branch, in crossing, returns to the greater curvature in the preceding part of the branch, but is, at the same time, diminishing its curvature; and this produces the blending of contrary forms and directions, which resembles the binding of contrary points together in the continuity of a line. Therefore Bacchus, like Apollo, was represented as drawn in a car. Continuity is also the belt of Orion. But, as every transverse progression is finite, Bacchus can only be the same finite continuity; or, rather, this mode of composition is like that comparison of individual forms which belongs to the elementary power of Vesta, which draws forth successive ridges. It is therefore said in the Scripture, that the tribe of Dan should become as a judge among the rest. The comparison of different kinds of gradation probably constituted also the characters of the Graces, Aglaia, Euphrosyne, and Thalia; who, by some authorities, were called the daughters of Bacchus, by others of Jupiter and Venus. These minute goddesses were judges of refinement, and had the power of reproofing coarseness or inelegance. The exhaustion of successive finite series, which increase in continued proportion, also extends to a sense of the unlimited; because, although each particular series comes to an end, it is evident,

from comparing those series which have been already completed, that the number of steps in the future ranges to be found must pass beyond the limits of all calculation. This is probably expressed in the Scripture in Jacob's ladder. Taking a stone (that is Vesta) for his pillow, he fell asleep, and saw a scale extending up to heaven. Some poets, such as Pope, have applied the same conception to the gradations of being in the universe, likening it to a great chain of which no link or intermediate degree could be wanted. This notion, however, is in a great measure erroneous, since the order of the universe probably depends more upon differences of kind than of degree, which latter is left open for progressive change, except among the brutes.

To this mode of composition may also be referred lyrical poetry, in which there is the completion of limited forms or stanzas. This character belonged to the people of Mytelene, among whom lyrical poetry received its origin from Alcæus. The transition into another series was also expressed in the action of Sappho, who leapt from the Leucadian rock, to escape from the bondage of her passion. Theophrastus, a native of the same island, satirized the improprieties of manners, or the want of refinement and taste. But, mythologically, the exhaustion of a particular series was expressed in the fable of Meleager the

Ætolian, the duration of whose life depended on the consumption of a brand snatched from the hearth. The ancient Romans, whose character corresponded with this mode of composition, thought that the highest glory and virtue was in the progressive enlargement of their prospects, or increase of range, as exemplified in their conquests ; for they were not contented to have their views terminated by any impassable barrier. These characteristics led them to approve of suicide. Among the modern inhabitants of Italy, the same taste appears in their love of the fine arts which, in regard to sensation, are essentially a trial of the various modes of gradation, or a comparison of different limited series. To the power of Orion belongs also emulation, which will not endure to be exceeded or surpassed. The character of the ancient Romans is accounted to have expired when there was placed over their heads an emperor, to whom all the other officers of state were virtually accountable and subordinate ; for then the glory of their separate duties and powers appeared to be lost. Such is the nature of this mode of composition as to republicanism ; but in the fine arts, where it is more useful, and can be more happily exercised, it tends to the multiplication of different departments, each having a manner and prospect of its own. Thus, republican virtue is converted into what is called *vertu*, or the sense of beauty.

This mode of composition has also a certain relation to the nature of the parabola, which must always reach a termination, and which, in approaching to that termination, traces the intermediate gradations of form according to the nature of a decreasing arithmetical range, in which the same quantity is taken away at each step. Now, in the exhaustion of any limited series, the same form is virtually expressed by the continually changing proportion of a single step to the quantity which remains to be exhausted. Therefore, Orion is virtually the same as the power of searching out the different forms of the parabola, always passing from a more rapid form, in which the gradations are coarser, to a slower form in which the gradations are more refined, and, by their greater number, extend the range or compass of the form to which they belong. Supposing the first series had thirty steps, the next transposition into a scale of one-third would begin a series of ninety; which, by another transposition, would pass into a series of two hundred and seventy, and so on; each of these series having a form of the parabola which corresponds with it. One of the mythological representations of the finite series was Hebe, the cup-bearer of the gods; and her character has relation either to the completion or exhaustion of a finite quantity. This is also the character of Priapus, god of lakes, as

determinate quantities ; and, in another point of view, of Pomona, goddess of orchards, because the fruits are finite quantities or completions. From each branch crossing within itself, and so changing its direction, this mode of composition is also like a search into the differences of direction ; and, therefore, it has a certain relation to the elementary power of Mars ; from whence one of his names, Gradivus. This, however, is but a partial resemblance, and must always come to an end ; since the changes of direction in each series are finite in their number ; although each new transposition produces a more extended range. Therefore, having only a partial resemblance to Mars, this mode of composition has most relation to the power of Vesta ; and the character of the inhabitants of Italy is that which comes nearest to it. The fable of Saturn hiding himself in Latium, signified that the form of the Saturnian hyperbola is lost or hidden in the transverse mode of progression, which is the same as Latium. This is the dominion of the Pope, whose character and place virtually coincides with that of Orion. Among the Homeric heroes, in the Grecian troops, the same power was perhaps represented by Diomed, whose native country was Ætolia, the birth-place of Meleager. In the Trojan battles, the son of Tydeus was distinguished for his auda-

city, which, like that of Orion, passed beyond all limits, and prompted him to lift his spear even against divinities. The same refusal to acknowledge any superior power was signified also in the fable of the giants, sons of the earth, or powers of Vesta, who, wishing to scale the heavens, placed Pelion on Ossa, and, upon these, piled other mountains.

The kings of Latium were descended from Faunus, a rustic power attached to the earth, or, in other words, belonging to Vesta. To the Fauns, however, there was ascribed a complete human figure, with the addition of small horns in the forehead, and a short tail at the termination of the spine. The Fauns may have had relation to the sense of form, which corresponds with a single branch crossing within itself and producing the intersections of parallel curves. Something like this is exhibited in the patterns of windows used in Gothic architecture, where parallel forms of the hyperbola are crossed by others, which, however, are generally exactly similar, and are not farther parts of the same curves, as must be the case when a single branch crosses by changing its direction. Closely connected with the sense of form is the love of the grotesque, which may also be ascribed to the Fauns, and which is not incapable of being mingled with the sublime. These

forms, along with the Satyrs, accompanied Bacchus, a divinity ever young, and only reaching the end of any series to pass into another more extensive. But the chief characteristic of this power is the comparison of the different kinds of gradation ; and, from this comparison, the sense of unlimited range is generated.

CHAP. II.

ON THE POWER OF SEARCHING OUT THE DIFFERENT FORMS OF THE SATURNIAN HYPERBOLA.

Hercules and the Muses.

THE exhaustion of successive finite series, found by transposition into a smaller scale, may also be considered in another point of view, in which it becomes the power of searching out the different forms of the Saturnian hyperbola; for, at the end of each transverse progression, if the same series of branches be continued without crossing, they will give a new form of the Saturnian hyperbola, that is, a new and different example of the comprehending curve. It is evident that the rapidity of any single form of that curve depends upon the number of branches or accelerations it contains within a certain extent of course; or, in other words, it depends upon the shortness of a single branch. Now, at each transposition into a smaller scale, the length of a single branch being virtually increased, it follows that, after the trans-

verse progression has been completed, the farther continuation of the same series of branches, without crossing, must give birth to a new Saturnian form, slower than the preceding. This form, however, must not be considered as capable of infinite prolongation, but only as a short specimen, which is tried before the series of branches is again transposed into a smaller scale. The comparison of these successive specimens is the power belonging to the second mode of composition ; for the power of Bacchus does not necessarily imply the continuation of a series of branches after they have ceased to cross. Among the ancients, this second mode of composition was represented by Hercules, the god of achievement and acquisition ; and those persons who acquired wealth were said to have been befriended by Hercules ; because all the Saturnian forms are forms of comprehension. Each transverse progression terminates in the discovery of a new Saturnian form, and corresponds with the spirit of investigation and adventure. Thus Hercules, in his wanderings, pierced into the stupendous scenes of rocks in the Hyperborean regions. Contemplating the wild shapes of caverns which suddenly divided light from darkness, he heard the cries of the wolf or eagle, and saw the distant mountains covered with snow. Pursuing his way through the labyrinth of rugged cliffs, he saw, beneath him, the concave edges of

cliffs, as it were set with teeth, while at every step his powers of scrutiny were sharpened, and the keenness of his vision increased. Descending to a milder climate, he found the Pierian maids always ready to welcome their associate, and to hail him by the name of Hercules Musagetes, or the leader of the muses. The ancients were accustomed to build temples to Hercules and the muses, as powers associated and joined together. The reason of this seems to be, that the muses are the powers of inventing and conceiving ; and imagination, or the power of comprehension, which belongs to Saturn, must also be attributed to them, who are rather the varied powers of comprehension, or its different modes in the different arts and sciences to which fancy and invention are applied. Hence their various attributes of music, painting, lyrical poetry, tragedy and comedy, and the rest. But, in English, to muse signifies to fancy or conceive.

This mode of composition, although its practical power is to search out the differences of Saturnian forms, has most relation to the elementary power of Diana or contrast, because the differences which it examines are those of forms of the same kind, namely, forms of Mercury. Now contrast is the comparison not of forms without similitude or relation, but rather of forms which are allied by principle, so as to induce comparison of their courses.

The most perfect contrast is in forms which are different specimens belonging to the same general rule ; because, between these, there is always a relation which bends them together and forces comparison, while they diverge and pursue dissimilar courses. Contrast, therefore, may be ascribed to Hercules and the muses ; and this mode of composition has most resemblance to the elementary power of Diana, and has relation to wealth and the aggregation of powers. To the same class with the muses may be referred Morpheus, a deity who had in his power all the diversity of dreams, or all the forms of the Saturnian hyperbola.

The kind of mental feeling which belongs to this mode of composition may easily be known by its characteristics ; for in every thing it desires the result. It also finds pleasure in the knowledge of particular examples of every power ; from whence, perhaps, the character of Eros, or the celestial Cupid, as the power of fixing on particular specimens. But from the love of contrast springs also allegory, which is some abstract truth presented as if disguised or hidden in a particular form or conception. Spenser is perhaps the poet nearest to English genius. Among the ancient poets, the most disposition to professed allegory is shewn in Anacreon, whom Love, in the form of a child,

frequently calls forth to battle, or invites to run a race with him.

To Hercules and the muses must be ascribed freedom and generosity of mind, and productive power; because every particular specimen suggests the possibility of others. This characteristic leads again to the power of achievement and acquisition. It has been said that, in England, the power of science is always seen in its result; and the character of the English nation is that which comes nearest to this mode of composition; both as to achievement and the search after results, shewn in the doctrines of the chief English philosopher, Lord Bacon, and also as to the national disposition to acknowledge the freedom of individuals, or to suffer each to pursue apart his own course, as one more added to the number of dissimilar modes of conception, which this power must always wish to see multiplied. The successive transpositions into smaller scales have relation to the sense of the picturesque, from the boldness and suddenness of the results; corresponding with which is the spirit of adventure advancing precipitately, while yet unable to guess the conclusion. The picturesque, in another point of view, seems to result from the composition of forms which are themselves composite; in the same manner that the power of Hercules searches out different Sa-

turnian curves, which are themselves forms of comprehension, including hyperbolic parts. Thus the picturesque may be produced from the rugged compilation of cliffs which exemplify different kinds of ruggedness.

To the elementary power of Mercury belongs conviction. Now, this mode of composition being the means of searching out the various forms of the Saturnian hyperbola, is the same as the power of comparing the various modes of conviction, or of weighing and considering arguments together. Minos, a form of this power, was appointed to be one of the infernal judges. Ariadné, the power of continuous deduction, the daughter of Minos, gave to Theseus the thread or principle by which he was guided through that maze which resembled the perplexities and difficulties to be encountered in reconciling the different aspects assumed by the same truth; for all the different Saturnian forms discovered are examples of the same curve. To Hercules or Minos, therefore, may also be ascribed the comparison of arguments, as a judge listens to what is said on both sides, till he finds out the truth, through the disguises of different statements. Diana was known under the name of Dictynna, or the Cretan, as if to signify the application of this character to her. Others said that the original Dictynna was a nymph beloved by Minos, and celebrated for having first invented hunting nets,

and using them on Dicté, a mountain in Crete. This fable corresponds with the power of acquisition. The voracity ascribed to Hercules was often a source of ridicule; but in the Muses it would appear as the desire to be always acquiring or comprehending something farther. Thus the laborious Aristotle, having explored all the different forms of syllogism, turned his powers of research into various other departments of science; or thus St Paul would never have an end of adding one more to the number of those he had converted to the Christian faith. Among the apostles, the place of Minos or Diana seems at first to have belonged to Judas Iscariot; but afterwards the same character was shewn in a totally different point of view in St Paul, who, of all the sacred writers, shewed the most inclination for the exercise of reason, or for that opposition of arguments which belongs to Minos, the comparer of evidence.

CHAP. III.

ON THE APPLICATION OF STRAIGHT LINES TO
THE SERIES OF HYPERBOLIC BRANCHES.*Pan or Æsculapius.*

THE third mode of composition is from the application of the third power, which is that of Apollo, or straight lines, to the forms of the hyperbolic branches. The straight lines, proceeding from the beginning of the whole as from a centre, diverge and become the power of marking off successive portions of any particular curve, by which it is shewn to have one nature throughout, or to continue producing similar forms. Or, when applied to successive branches, the straight lines are still capable of finding their harmony and relation of these branches, and of giving so much for so much, in two forms measured at once. Hence the balance may be ascribed to Pan, although it belongs truly to Pollux or Eridanus, as will afterwards be shewn. This mode of composition is like the concurrence of abstract rule with nature, to help it, support it, and bear it out; and it corresponds with the

medica, or strengthening power of Æsculapius; for it soothes and flatters nature by going along with it. This mode of composition contains no power of creative progression; but the straight lines, diverging from and moving round a centre, can only continue to measure or try those curves along which they spread. This mode of composition was expressed in the character of Pan, the inspirer of alarms; but he was also a woodland power, loving to sit tranquilly amidst the forest recesses, and to diffuse the sound of his reeds through the trembling air; and his pastoral attribute is another characteristic of the power of superintendence proceeding from one centre. This mode of composition has most relation to the elementary principle of Jupiter, or revolution, and the completion of cycles. But since the parallel courses which extend together in any hyperbolic form must always be different curves, it follows that a straight line moving over them must always measure different forms at the same time; and must give or mark off corresponding portions in the curves which bend together as parallels. The characteristics of this mode of composition seem to belong to the Scotch nation, or more particularly to the Scotch Highlanders. The Lowlanders of Scotland may perhaps rather be taken for forms of Pluto, a power which will afterwards be explained, and which was also mythologi-

cally exemplified in Epimetheus, deriving knowledge from events after they were past, but never able to foresee them. But the character of Prometheus, who was distinguished for wisdom or foresight, in some respects corresponded with Æsculapius, as the power of animating and supporting. Æsculapius was the son of the nymph Coronis, who was afterwards changed into a raven, the type of foresight and vaticination. To the same mode of composition with Pan may be also referred the Pythian Apollo, whose oracles were uttered at Delphi, in Phocis. The name of one of the places in that region was Anemoreia, that is, “the rushing of blasts,” which is like some of the names in the poems of Ossian. In the Trojan war, the Phocians were led by Schedios and Epistrophos; but this power was not represented by any distinguished character among the Grecian troops. Of all the modes of composition, this, which coincides with the elementary power of Jupiter, is the coarsest and the most vulgar, but, at the same time, it has a certain beauty of its own, which arises from its universality and simplicity. To St Andrew may be ascribed the pastoral flute; and the essential characteristic of Pan is the inclination to superintend and interfere. Thus the Delphic oracle, by its responses, found means to direct the affairs not only of Greece, but of many surrounding countries. But Pan is likewise the

power of all taken together ; and a system of mutual control and interference or usurpation, if it were perfectly equal, in a large community, might be compatible with the simplicity and kindness of the golden age, or the good-nature of mankind exercised in prompting and admonishing each other. This is the beautiful ideal of democracy. But it would preclude all difference of manners or habits ; for the characteristic of Pan is the incapability of progressive change ; and this is the true meaning of his form being partly similar to that of beasts. The conviction, that the same things which now are must continue for ever, constituted the sunshine of the golden age, and was exemplified in the unchangeable character of shepherds engaged in superintending their flocks, or in sounding their vocal reeds. But Pan was also much revered by the ancients for the wonders he accomplished by inspiring panics in war, although the exercise of this power was generally of short duration. To this class may perhaps be referred Napoleon Buonaparte, who is now for ever laid asleep in the island of St Helena. It was the opinion of Napoleon, as of many others, that every thing in the world ought to depend upon the mutual consent and concurrence of numbers. This, at first, has the appearance of being liberal and just, but it would soon preclude all the differences of manners, and make an end of individual free-

dom ; since the multitude leagued together will always be inclined to persecute and insult those who refuse to combine with them. The power of universal consent would knit mankind together in a world of vulgar falsehood of their own establishing, and would keep them, like tribes of savages, ignorant of every thing beyond. There can be no difference of manners or opinions among the brute creation ; but, in proportion as men rise in the scale of intellectual life, it becomes more necessary that individuals should have the liberty of keeping their motives and feelings apart from those of others.

CHAP. IV.

ON THE RETROGRESSIONS OF THE HYPERBOLA.

SECT. I.

ON THE INFINITUDE OF A SINGLE CURVE.

Pelops or Proserpina.

THE fourth mode of composition is from the application of the elementary power of Diana, or angle, to the hyperbola. This is the means of shewing that the curve is infinite, in which ever direction it is traced ; or, in other words, that it has no real centre, or that its course may be traced back for ever into the depths of space. For if successive portions of straight line be placed along the inside of the curve, touching it, and always joined to each other at the same angle, it fol-

lows, from the nature of the curve, that these portions of line will be a series of proportionals diminishing towards the origin of the curve ; because they are joined together always at the same angle, and because the successive angles which they form all touch the inside of the hyperbola, and their series participates of its quality, which is founded on continued proportion. Now, when the origin of the hyperbola is arrived at, and when the curve extends no farther in that direction, as a guide, then the series of angles may still be continued, according to that proportion which is already begun, and they will continue to trace back the curve for ever, as it retires by diminution into the depths of space, and disappears from the reach of the senses. But the parallel courses of the original hyperbola must also be supposed to be prolonged in the retrograde direction, and to follow the series of angles. The breadth of the parallel courses would at last become an obstacle to their farther retrogression ; but these also, by successive falls or contractions, greater in continued proportion, may be supposed to approach the innermost line, and so to permit a farther extension of the curve by a number of angles greater in continued proportion, after each fall. These will draw out successive forms of the same curve, always more extended ; these portions being marked off by the successive

falls. Supposing the first portion had ten angles, and the next portion had twenty, then the second portion would contain the first form twice; the third portion would have forty angles, and would contain the second form twice, and so on to infinitude; each successive portion being a more extended form or reach of the innermost curve. But since, after each fall or contraction, the breadth of the outer parallel courses is made less, their forms must become different, while the innermost curve touching the angles continues always the same. Therefore, after each fall or contraction, the outer courses of the hyperbola are made to produce new hyperbolic forms, nearer to the innermost curve, to which they are always parallel; and, the power of Proserpina, although apparently one curve, has an infinite series of different hyperbolic forms, all fitted to the outer side of the simple and continued curve which touches the angles.

Farther, by this mode of composition, it may also be shewn that any hyperbola, although extended in the evolving direction along an asymptote, will at last, in its retrogressive course, assume the form of an involute; because the repetition of any angle, however obtuse, will at last make the curve turn in. The characteristic of this power, nevertheless, is that, being such as to withdraw from the reach of the senses, it can at last only be made a subject of

cogitation; for the remainder of the form assumed by the hyperbola in its retrogression can never be seen, but can only be ruminated upon in silence. This is the kind of refinement and beauty which belongs to Proserpina, the queen of the shades, and which has the characteristic of purity and firmness in belonging all to one curve. But this curve may also escape from its perfect uniformity, and become susceptible of change of direction, by continuing always to cross itself in the same direction towards the inner side of the curve. In this case the general course of the curve would continue the same as before, and every second portion of it would return to the original course of the simple form, but every intermediate portion being turned in the opposite direction, so as to have its concave side outwards, would give to the power of Proserpina a sense of continually changing direction. Each crossing may be supposed to take place after an equal number of angles, and the number of crossings, after each fall, would therefore increase in continued proportion. Such may be imagined the meanders of the river Phlegethon. The successive intersections of the curve would also be connected with a consciousness of increasing refinement in the successive parts of the same form; or the continued reproduction of the same form on a smaller scale by the same curve in its retrogressive course.

This mode of composition has most relation to the elementary power of Venus ; because the parabola is retraced towards its origin, which is infinitely remote, and can never be found. The power of Proserpina is similar to this ; but it retires within itself, and traces back the form of the hyperbola for ever to its origin, by means of cogitation or deep internal feeling. Thus Phlegethon continued to restrain its sound the more in proportion as it descended into a deeper shade, till it was lost in silence. But, in another point of view to Proserpina may be ascribed the power of fashion, which excludes or refuses to acknowledge whatever is not found within a certain line, or manner, or quality ; in the same way that Proserpina refuses to acknowledge any form which is not found in tracing that one curve which has been begun. The refinements of social feeling may also be compared to the connexion of successive forms, all having their places in one curve, and constituting a whole by the mutual correspondence of their quality or fashion which is conformed to the same ruling principle, although the forms themselves must all have different places and functions in the series. Among the ancients, the country whose inhabitants seem to have had most relation to this power was Elis, where a general assembly was held of the Grecian nations at the Olympic games ; and where, probably, at every

celebration of the games, a sort of fashion or prevailing mode was communicated, to retain its influence for the next five years. The inhabitants of Elis were exempted from the hardships of military service, and their region was veiwed as a privileged field, and as sacred to the refinement of all the nations. This was probably also the character of Pelops, whose shoulder was said to have been devoured by Ceres, and from whom the Grecian peninsula took its ancient name. In modern Europe, the same character is perhaps exemplified in the Prussians, as to the variety of particulars included in one fashion. To the same class may be referred the leopard, the most beautiful of the tiger species. This is perhaps also the true character of Ariadné, the companion of Bacchus ; because of the increasing range and extension of the retrogressive forms which are traced by the power of Proserpina ; in which respect it has a correspondence with the character of Bacchus. But, in another point of view, the successive falls in the breadth of the curve have relation to the condensation of substance, and its power of involution, which is expressed in the proboscis of the elephant, as condensation is in the tusks ; from whence perhaps the ivory shoulder of Pelops.

In the Italic region the power of Proserpina seems to have belonged to the Etrurians, a nation

always distinguished for taste, and also for a certain characteristic firmness and purity in these forms which they designed. The Etrurians are said by Herodotus to have been originally a colony from Lydia in Asia Minor. To the school of Proserpina may evidently be referred Michael Angelo, and Danté, the explorer of the infernal regions, who frequently endeavours to express what is beyond the reach of the senses, as when, at the end of his poem; he endeavours to describe the visible appearance of the Trinity.

This talent is of a nature exclusive, and often severe, but at the same time capable of uniting beauty with a stiff and peculiar manner. It is also compatible with recluseness; because the recluse may be as a system of fashion to himself, by rejecting and excluding all that is not within a certain line which he has chosen. To this mode of composition may perhaps be referred one of the modern English poets, namely, Wordsworth, who has the power of finding out much within any given limits. To the same power may perhaps be referred topography, which finds out all the resources and localities contained within a given region. Thus, Danté investigated the different circles of the shades. Galileo, applying the telescope to portions of the heavens, found in them clusters of minute stars, which had not before been discovered. The power of Proserpina, being

confined to one curve, has more relation to the discovery of different places than of different manners and kinds of extension. Nevertheless, though, for this reason, connected with stiffness and simplicity, it has a strong relation to the discovery of form; which it augmented by the curve being capable of a sort of alternation, which changes the situation of particular parts, while its general course as an involute is preserved.

Elis was also the place in which the muses were met by *Thamyris*, who offered to contend with them in song, and whom they overcame and deprived of sight, because it was previously agreed that the party vanquished should be at the disposal of the victor. *Tiresias* was another blind prophet, celebrated for his wonderful knowledge, and for a fabled change of sex. That *Proserpina* was considered by the ancients as one of the most refined powers, is shewn by the remark of *Vitruvius*, who says that, in building temples to *Proserpina*, *Flora*, or *Venus*, the *Corinthian* order should be employed as the most conformable to the delicate and feminine nature of these powers. There was also a restorative influence ascribed to the daughter of *Ceres*, and one of her titles was *Proserpina* the *Salutary*; perhaps from the power of order and regular distribution of parts within a certain space, which was before explained.

In regard to feeling, *Proserpina* is the same as the

elementary power of Venus or acquired motion ; and this is also the character of Eros or love, in his most universal form. As in the physical world the gravitating power of a body relates to all the solids in the universe, and compares their respective influences ; so the power of Proserpina is the same as the feeling of all things taken together ; from whence the character of the counsellor, Nestor of Pylos, who weighed different considerations with each other. Among the modern European poets this character seems to belong to Goethé, whose poetry exemplifies a sublime enthusiasm and sensibility in regard to the powers of the whole universe modifying each other. This is the same as the love of variety which liberates the mind, and enables it to feel an unconfined enthusiasm, in yielding to the powers of all external affections together. This is also the character of Hesiod, whose theogony is imbued with a feeling of the influential powers of the whole universe, and of Love, the most beautiful of the divinities. Hence the image of jealousy spoken of in the scripture ; for this is the love of created being more than the love of God. Thus at the Olympic games, the ancients could scarcely perform religious rites with sufficient devotion for thinking of the vast assembly which was present.

SECT. II.

ON A RETROGRESSIVE SERIES OF BRANCHES, OR
THE POWER OF SEARCH INTO ANTIQUITIES.

Pluto or Adonis.

THE application of a series of similar angles to the interior of a curve is capable of other powers besides that which belongs to Proserpina, and gives birth to other modes of composition. Throughout the whole series, the angle itself must be supposed to remain the same, but the proportion of its two sides being capable of being changed, the series of angles may be employed to retrace different hyperbolic curves. If, in the series of lines diminishing according to continued proportion, the later or shorter line be increased to nearer the same length with the preceding, then the nature of the curve which is traced will be changed, and it will be transposed, in the retrograde direction, into a slower form of the hyperbola; which, after a certain number of angles, may again be changed into a slower, by another addition to the length of the later line. But the series of added

quantities must diminish in continued proportion, to prevent the later line from even becoming equal to the anterior ; for a series of additions, diminishing in continued proportion with sufficient rapidity, will never increase the later line beyond a certain extent. If this precaution be observed, the retrogressive series of branches will be infinite ; and, if to each branch the same number of angles be allowed, the lengths of the branches will diminish in continued proportion, the whole series assuming the form of a general retrogressive curve, having hyperbolic angles like those of the Saturnian hyperbola. But, by increasing the number of angles allowed to a branch, the lengths of the successive branches may be drawn out according to various rules, or even with perfect freedom, while their regular deduction as to quality is preserved.

This new mode of composition was probaby the one which belonged to the character of Pluto, the ruler of the shades, to whom also may be ascribed the power of exploring internal possessions. To this mode of composition may also be referred the power of search into antiquities, because in exploring a retrogressive series it remounts to those earlier and slower forms which must have been anterior, according to that rule. Thus Pluto, contemplating his possessions in the infernal regions, was enabled to remount to the

earliest generations which had been upon the earth. This power is also capable of a sort of alternation by each branch crossing itself, and changing its direction towards the inner side of the general series, on which principle the whole series is enabled to preserve its general course as an involute. The first branch, by crossing, will place the concave side outwards ; the next branch, by crossing, will again turn out the convex side ; and so on alternately. Thus Acheron, the river of pain, so named perhaps from drawing out particular portions of form, continued its descent through the infernal regions. This mode of composition has most relation to the elementary power of Mars, because of its perfect freedom of changing its course in every direction ; not only because of the general curve being an involute having an infinite series of branches, each of which has a direction of its own, but also because of the power of drawing out the length of any particular branch, by which the position of the branch that is to follow may be totally altered, and by which there is a perfect freedom of giving it any direction. This is like the power of communicating ductility to forms ; and, in the celebrated hymn in honour of Proserpine, which is said to have been sung by Pindar appearing after his death, there was applied to Pluto the ephithet of χρυσήνιος, the golden. To this class may be referred some of the

greatest painters who have excelled in gracefulness, like Raphael; because the source of freedom of design is the power of shortening some parts of forms while others are increased or drawn out. To the same class may be referred Rubens, who did not excel in delineating beauty, but who had the same perfect freedom of changing the course of his lines, and making the figures appear as if turning. Another form of this power was Adonis, the beloved of Venus.

Among the ancient nations, the character of the Arcadians seems to have been that which came nearest to this mode of composition. Living in an inland country, they passed their time in a state of rural freedom, enjoying the pleasure of contemplating their internal possessions of flocks and herds, and easily changing their intentions as they wandered from mountain to valley. A troop of Arcadians was present at the siege of Troy; and they are mentioned by Homer as skilful in war. But, like Pluto, they preferred nothing to their own region, and those inland solitudes, which were called by the poets *nigri colles Arcadiæ*, “the dark hills of Arcadia.” Pan also was said to frequent them; but this was not because the character of the Arcadians coincided with his own power, but only because of a certain similitude between them; as the power of Pan, which is straight lines diverging from a centre, has an obvious relation

to change of direction, and so far coincides with the power of Mars. The regions frequented by the ancient divinities were generally not peculiarly their own, but merely had some partial coincidence with the power which belonged to them, and therefore, were supposed to be agreeable places of resort for them. Thus Bacchus frequented Rhodopé, and the cold mountains of Thrace belonging to Mars. The graces dwelt at Orchomenus in Bœotia; and Sicily was called sacred to Proserpina, although it had more relation, perhaps, to the power of Ceres. To Pluto may be ascribed also the power of acceleration; because the effect of the addition made to the later line in the series of proportionals, is to carry out the curve to a greater extent or circuit than the same number of angles would have produced if the former proportion of the lines had been continued. For although each successive branch, to which the same number of angles is allotted, is shorter than that which preceded it, nevertheless each new branch, by altering the course of the curve into a wider or more circuitous form, has a real power of making the extent of the curve have an increasing proportion to the same number of the angles which trace it. Thus Acheron may be conceived as rolling its floods with increasing vehemence, but, at the time, with perfect freedom and fluidity of parts. The characteristic of this power is internal profu-

sion and affluence. Thus Rubens drew a great picture representing the fall of the damned. To the same class with Pluto may perhaps also be referred Pythagoras, one of the greatest among the ancient philosophers, and particularly curious about the powers of finite numbers. This power, from being like a retrogressive form of the Saturnian curve, corresponds also with the power of gloomy imagination searching into the depths, and was shewn in the poetry of Milton, who chose Satan for his hero; for Mars must always be rebellious, and wish to have the free prospect of the whole universe to himself. This seems also to have been the character of the ancient Persians, who, like Milton, delighted in the conception of an evil principle opposed to the good.

Supposing the additions made to the later line in the series were too great, or according to too slow a series of proportionals, the length of the later line might ultimately become equal to that of the preceding one; and, in this case, the curve, being no longer conducted by lines of unequal proportion, would cease to bend as a retrogressive hyperbola, and would become part of a circle. This was perhaps signified in Styx, which was considered as only an æstuary of Acheron. Styx was sworn by, because the angles, if continued, will complete and fulfil the circle, and, unless by a farther addition, there is no escape from it. This

name was also given to a lake in Arcadia. If the lengths of the two equal lines were continually diminished by the same quantity being taken from both, it would give a type of the wearisome and stationary power of Orcus, and the series of angles would continue tracing portions of circles always smaller, and descending to infinitude. Pirithous, who attempted to carry away Proserpina, and who afterwards was bound in the infernal regions, represented this power. When he asked what was it o'clock, the answer was, eternity. This was also the power of Circé, who had the power of changing the human species into brutes, which signifies making their nature stationary and unprogressive.

SECT. III.

ON THE EVOLUTION OF DIMINISHING HYPERBOLIC
BRANCHES.*Perseus.*

IF, in the series of angles which trace the curve, the later line had at last become equal to the preceding one, then, if length still continued to be added to the later line, it would become the longer of the two, and the series of angles would begin to trace an evolving curve, which would also be the hyperbola. And, if always, after a certain number of angles, another addition were made to the later line, but, according to the same series of quantities, diminishing in continued proportion as formerly; in this case there would be produced a succession of evolving branches, for ever expanding and increasing in length. This power is derived immediately from that of Pluto, and is produced by the continuation of the same series of added quantities diminishing in continued proportion. It was signified in Demogorgon, of which the Arcadians were afraid to pronounce even the name.

The chief representation of it, however, was in the characters of the furies Megæra, Alecto, and Tisiphone, the daughters of Acheron and night; and also, perhaps, it belonged to Cocytus, the river of lamentation, because of its evolving form; for it was understood that Acheron flowed into Cocytus. Thus the power of Pluto may come to an end and be lost in that of Cocytus; from whence the ceremony of weeping for Adonis.

But as this series would have no limit to the increase of its size, it becomes necessary to suppress and restrain the expanding power, by transposing the angles which trace each successive branch into a smaller scale, for instance a fourth. This will make the branches continually diminish their length, with immense rapidity, though they continue evolving, and pursuing the same deduction as before. This mode of composition was probably signified in the character of Perseus, who slew Medusa, and placed on his shield the gorgon's visage, surrounded with snaky hair, and still retaining sufficient terrific powers to convert the spectators into stone. But, this mode of composition, by the successive changes of scale, passes into infinite refinement, and acquires another peculiarity, which is, that the branches, by their successive diminutions, turn in, and change the course of the whole series so fast that it becomes an involute, while all the particular branches continue

evolving. This is like those powers of magic by which rivers were made to flow back towards their sources. The characteristic of this mode of composition is, that it is like a vast extent gathered up within narrow limits, because each branch in the diminishing series represents one which would have been found at an immense distance, and situated in a totally different curve, if the original series had been followed out, without transposition into a smaller scale. But that order is reversed; and in proportion as the branches would have been far off and of great extent, they are represented by branches more minute and delicate, and farther withdrawn into the bosom of the curve. The character of the Spartans was that which came nearest to this mode of composition, because they were distinguished for brevity of expression, for theft and concealment, and for great courage and power, which seemed ridiculously to defy what they were totally disproportioned to. Perseus was called the grandson of an Argive prince, but had no relation to the Argive region, and may be assumed as the type of the Lacedæmonian character. This mode of composition has most relation to the elementary power of Mercury; because it partakes of the nature of a series of evolving hyperbolic branches, such as exists in the Saturnian curve. One of the attributes of Mercury was speed in going to distant places, and the winged sandals were also ascribed

to Perseus. Mercury was also the protecting god of thieves. To this mode of composition may also be referred the character of Somnus, the brother of death, with the power of imagination; since the curve of Perseus resembles the Saturnian hyperbola, to which imagination originally belongs. The muses, in searching out the different forms of the Saturnian hyperbola, virtually explore the different modes of imagining, and contrast them; but the power of Perseus belongs all to one curve, and is like the infinitude of one vast and endless dream. This character may be ascribed to the ancient Danes, among whom the mythological poems of the north were composed. This mode of composition may also be made to alternate, by each branch crossing itself and changing its course towards the inner side of the general series, by which means the whole together will preserve its course as an involute. The first branch, by crossing, will place the concave side outwards; the next branch, by crossing, will again turn out the convex side, and so on alternately. This becomes the same as the consciousness of sleep, or a sublime feeling of mental illusion, which some of the eastern sages endeavoured to cultivate. Mercury was called the son of Maia; and he may be conceived sliding through the region of the air, as if lost in dream. To this mode of composition belongs a bold and oriental mode of imagining, and a style of expres-

sion passing into hyperbola and metaphor; since metaphor is the substitution of another form for that which was originally meant. This power is not so much allied to the feelings of modern Europeans, such as they have hitherto existed. Among the English poets, Coleridge seems to come nearest to it. In another point of view, this mode of composition is the power of bringing near that which is remote, as if the vision of Perseus extended to the summit of Olympus, or to the remotest of the glittering tents and pavilions of genii spread in the air, and not appearing till after sunset. The true sage sees things afar off; he seems as if he could lean the arm of his understanding on the horns of the moon; he has nine hundred and ninety-nine ears for every sort of instruction; the thousandth is reserved for sleep, and, in the daytime, for the habitual songs of the grasshopper, or the murmur of a neighbouring brook. The want of self-constraint allows troubles to expand, and leads to a state like the whirl of dancing santons; but surely the virtuous man enjoys peace; and the only things which he covets are those which belong to time and distance. In the fine arts, that which seems most connected with this mode of feeling is relieveo, in which the dimensions of solid figures are made to approach to the nature of a plane; because this is like the power of contraction and compression which belongs to the Lacedæmonian

character. If there were Spartan artists in ancient times, it is probable that they would have a peculiar talent for works in relievo. The nature of relievo, however, would be coarse, and would have nothing sufficiently peculiar to itself if the figures were too prominent; and its greatest delicacy is when the figures seem almost to sink and vanish in the plane; for, since its origin is from solid figures, it is evident that the boldest relievo must be, in reality, that which makes them approach nearest to a plane, where they appear as if about to vanish. This mode of composition was also the peculiarity of Horace, in whose odes is shewn the power of contraction bringing together materials from great distances *animoque rotundum percurrisse polum*, geographical references, which often compress a vast extent of dominions within the compass of a single ode. Jerusalem was built in the region which belonged to the tribe of Benjamin; and, perhaps, the Jewish style of architecture may have had some relation to this mode of composition, in which the proportions are not of a direct and simple meaning, but in proportion to their decrease expressive of something farther off, and much greater in size. Such was Nemesis, who reversed the fortunes of the great and proud. This was perhaps also the character of the ancient Chaldeans, who delighted in observing the distant phenomena of the heavens.

SECT. IV.

ON THE RETROGRESSION OF THE HYPERBOLA
THROUGH A SERIES OF INCONSECUTIVE FORMS.

Vertumnus or the Fates.

BUT, differing from all these powers, and existing entirely apart from them, a new retrogressive series will be found, if in the succession of angles as they existed at first in the power of Proserpina, the later line instead of being added to, as in the power of Pluto, at each new branch, be, on the contrary, diminished at the beginning of each new branch, according to a series of quantities diminishing in continued proportion, so as never to exhaust the extent of the later line. In this case, the general series, instead of passing always into slower forms of the hyperbola, will make its transitions into more rapid forms. These exist together in an order which is the reverse of that which belongs to the original form of the Saturnian hyperbola, to which the curve of Pluto has a certain resemblance; because the curve of Pluto coincides with the natural order or derivation of branches, each

leading to a slower form which had preceded it. But, when the later line, instead of being added to, is diminished, then the points at which the branches are joined together must all project towards the convexity of the curves; and each branch becomes like a terminated form, not naturally leading either into that which precedes, or that which follows, so that it is situated as if it did not belong to any general curve, but was only contiguous to those forms beside it. This mode of composition appears to have been signified in the characters of the Fates, the daughters of Erebus and night. Their business was to determine the limits of time, fortune, or any thing else, to individuals; and this corresponds with the power of searching out particular modes of extension, defined and separated, as it were, from those which precede and follow them. To Clotho, Lachesis, and Atropos, may be ascribed also the power of retardation; because, in each new branch, the same number of angles will trace a form of smaller extent or circuit than would have been found if the same proportion of the lines had been continued. Therefore, in the succession of branches, the extent or circuit of the curve, has a decreasing proportion of the same number of angles; and this is the same as the power of retardation. This power must be supposed to alternate in a manner peculiar to itself; each branch crossing itself once, and terminating

in a form which is crossed by the succeeding branch springing from it. Thus Lethé, the river of oblivion, passing through the deepest shades, soothed them with the changing current of its waters, which appearing to stop in successive eddies, always flowed on in a new direction. This mode of composition has most relation to the elementary power of Vulcan or definition, because of its relation to terminated forms. Of the character of the ancient Argives nothing is now known but that they were considered as the favourite people of Juno. To the Fates may be ascribed the sense of contrariety in those things which are united at a common boundary.

One of the greatest poets of antiquity is said to have been Palamedes the Argive, who was contemporaneous with the Trojan war, and from whom Homer is supposed to have borrowed many things. But to the same class with the Fates may be referred Pindar, whose poetry, besides celebrating the good fortune of individuals, relates mostly to the peculiarities of different countries, divinities, or races of mankind, and corresponds with the power of defining, or of specifying, what is peculiar to each, and what each obtains. The Fates had the task of ascertaining what lots or conditions were to fall to individuals, and Vulcan may be conceived as intellectually discriminating the natures of abstract powers. To the Fates may also be symbo-

lically ascribed the parrot as a type of articulation ; because each vocal power, in the structure of words, is like an abstract rule which may be prolonged to any extent, before the vowel is closed or shut in ; but the knitting of these different vocal powers together is articulation, and corresponds with Vulcan, or the conjunction of different abstract rules in that which is one ; for it is essential to articulation that all the component vocal powers be limited. Among the Asiatic nations, the mode of composition belonging to the Fates seems to have been exemplified in the Phœnicians, who, like the Argives, were a mercantile people, dwelling upon the sea coast, and skilled in maritime affairs. Thales is said to have been born at Miletus, but his progenitors were Phœnicians, and he was understood to belong to that nation. In modern times, the same character seems to have belonged to the Venetians, also a mercantile people, dwelling on the border of the sea ; and the peculiar talent shewn by their painters, who excelled in colouring, also corresponds with the power of Vulcan, because the play of each simple colour is one abstract rule, and the art of blending colours is the same as the conjunction of different rules in that which is one, or the conjunction of different straight lines in one triangle or polygon. To the Fates may also be ascribed the power of observing the change of times, and of marking the boundaries of periods

differing in kind ; and this was perhaps signified in the character of Vertumnus, the god of the seasons. To this class may also be referred the ostentatious peacock, the favourite bird of Juno, assigned to her by hypothesis or imputation. The Venetians were characterized by a taste for buffoonery ; and this also belongs to the Fates, whose portion is to know the definitions and properties of all the passions, and their respective tendencies ; and this is the source of pantomime, which, in a philosophical point of view, is the source of the most refined intellectual pleasure. But mankind are generally too confined in their views, and too much under the influence of particular affections, to perceive the advantage of any such general taste, and they most frequently are inclined to regard buffoonery as an insult to the particular feelings which rule in their minds for the time, or which habitually belong to their characters as individuals. This, however, shews the excellence of the powers of definition as a source of reproof to the ignorant and selfish, and as a commemoration of the magnificent variety of powers which exist in the universe, and which, in ancient times, was exemplified in the assemblage of the different nations at the Olympic games.

Of those four powers which are produced from the application of the power of Diana, or angle, to the hyperbola, the Fates, being disjoined and apart

from the rest, should be placed first, then the mode of composition which belongs to Proserpina, then Pluto, and last the power of Perseus, in which the particular branches all resume the evolving form originally belonging to the hyperbola.

CHAP. V.

ON THE INTERMINABLE FORMS OF TRANSVERSE
PROGRESSION.

SECT. I.

ON THE POWERS OF CONTINUITY AND SYNTAX.

Erichthonius or Hyperion.

IN the foregoing modes of composition, a series of angles having been already applied, the application of the next power, Vulcan, to the curves, which are guided by angles, will only have the effect of making the branches cross, and produce a new form of the transverse mode of progression, which belongs to Bacchus. The power of Vulcan may be applied to such a form as that of Perseus; and each branch may cross by one of the straight lines in the series of guiding angles being caused to turn back, and make the complement of the same angle on the other side of the preceding straight line. This change of course in the middle of

each branch would make the whole series quit the form of the general curve of Perseus, and stretch forward by alternating, as in the mode of progression which belongs to Bacchus. But, in this case, there being no addition to the thickness of the successive branches, the series would never be stopped, but would extend to infinitude, and is the same as interminable continuity.

This mode of composition has most relation to the elementary power of Apollo; and it was perhaps signified in the character of Hyperion, the celestial charioteer, and also in Erichthonius, the inventor of the chariot; which is the same as drawing or the continuity of a line, in which the advancing point retains its connexion with the extension thrown behind. The mode of composition nearest to this is a branch returning across itself in the direction contrary to its own previous extension, and so blending contrary tendencies into one form, which appears in the intersections of the parallel lines, as in the mode of composition which belongs to Bacchus; but the power of Bacchus consists always of finite series of branches; while this mode of composition which belongs to Erichthonius consists of one endless series, and therefore corresponds with the infinitude of continuity. In a straight line, any two points are contraries, but they are blended into one by a perfect intermediate continuity of extension, in the same manner as

the horses are bound to a chariot by the traces ; and thus Erichthonius continues for ever uniting contraries in the form of each successive branch which crosses.

In this mode of composition, each successive branch, as in the form of Perseus, may be transposed into a smaller scale, to prevent the excessive expansion of the form, which would otherwise take place as formerly in the Gorgons ; and which was probably signified in the giant Typhon, a furious whirlwind, whose powers at first terrified and disconcerted all the gods. Or thus the inconsiderate Phaëthon, having obtained from Phœbus the boon of being permitted to drive his chariot, could not sufficiently restrain or control the horses, and was struck from his car, to prevent the conflagration of the heavens. But by the successive diminutions of scale, this form contracts and passe into infinite refinement, so that the added branches, becoming always less, scarcely make any visible addition to the extent of the whole form. This mode of composition being the same as the elementary power of Apollo, partakes of the nature of a list or catalogue of particulars, and becomes the same as genealogy and the power of determining the order of particulars as to priority in time or place. To Erichthonius therefore may be ascribed historical narration ; and this character seems to have belonged, among the ancient nations, to the Egyptians, who were

remarkable for retaining among them the memory of the past, and for continuing the same manners and opinions which they had derived from the remotest antiquity. The Egyptians also excelled in construction, which is the art of binding together different particulars in the same continuity; and, therefore, construction, and the power of following out a method which has been begun, are always found together; and to this class may be referred those mathematicians who study the generation of any simple curve as a list or genealogy of points bound together in one continuity, and having their places according to a certain rule. Every abstract rule changes and passes through successive states as it is continued, and, therefore, Erichthonius is also the power of metamorphosis, or the intermediate connexion between a state or condition which has been left and another which has been passed into. Thus Ovid, at the beginning of his poem, asks the gods to enable him to deduce a perpetual song from the beginning of the creation. In the Scripture, the power of genealogy and historical narration is shewn in Moses, who belonged to the tribe of Levi, and who was lifted from the waters of the Nile. To Erichthonius must also belong the syntax or construction of words in language. To the same class with the Egyptians may perhaps be referred the European Thebans, deriving

their origin from Cadmus and Hermioné, who were changed into dragons, that is, powers of continuity. But both Bacchus and Hercules were born in Thebes, from its relation to the transverse mode of progression. Pindar and Hesiod, although born in Bœotia, were both foreign to the Theban character, which rather belonged to Herodotus. The proverbial dulness of the Bœotians may have arisen from too much tenacious continuity. To this class may be referred the duck, the goose, and the swan, which are similar in their character to the protracted dragons of Bœotia; and the swan was sacred to Apollo. But the same power was perhaps also exemplified in the Rhodians, who seem to have worshipped Apollo as a sort of everlasting Bacchus. Aristophanes, a native of Rhodes, was an instance of that power of ridicule which depends upon the art of forced construction; or the union of contrary tendencies. Thus the horses of Erichthonius, in first getting into motion, seem as if they were going to leave the chariot behind them, but it is compelled to follow. To this power may also be ascribed sophistry and paradox, as exemplified in Hume, who was also an historian, and Rousseau, one of whose favourite studies was education, in which the mind is carried on through successive states or conditions; and perhaps the character of the Swiss, in general, may be founded

on the same power of sustained continuity which belonged to the ancient Egyptians. Regularity of habits made the Swiss nation much esteemed as servants throughout Europe. This is also the character of Ganymede, the cupbearer of Jove ; but Hebé was a form of the limited series which belongs to Bacchus ; and, in reference to its termination, she is said, in bearing the goblet, to have stumbled before the assembled divinities, and displeased them ; after which Ganymede was made cupbearer in her stead. In Asia, the same character seems to belong to the Chinese, who are equally tenacious of habit, while the progress of time carries it always into greater refinement. The Theban Niobé, boasting that she equalled Latona in beauty, had her children shot by Apollo and Diana ; and, in long weeping and refining upon her grief, was changed into a stone. To this power may also be ascribed the power of refining the quality of one substance or material, as exemplified in the Chinese pottery, and the colours given to it ; for these shew the art of refining single hues, which are as single rules or powers of continuity. And Titian, in painting, may be classed rather as a Swiss than as a Venetian, since it is the opinion of the skilful, that his chief excellence is in the clearness and strength of single hues, such as that of the flesh. Among the

apostles, the power of Erichthonius seems to have belonged to St Matthew, who is the chief of the Evangelists as to history ; and who was of the tribe of Levi, and called from sitting at the receipt of the custom. But the chief characteristic of this mode of composition is self-will and reliance on the power of habit ; from whence its relation to education.

SECT. II.

ON THE DEDUCTION OF COMPOSITE HYPERBOLIC
BRANCHES.*Theseus.*

THE application of the power of Vulcan also produces another kind of infinite series, which is partly similar to that of Erichthonius, but essentially different in power. For if the crossing, instead of taking place in the middle of each branch, be employed always at the point where the last branch terminates and the new one begins, in this case the transverse form of progression will still be continued; but each hyperbolic form will intersect the parallel courses of the last branch. Therefore, in this deduction, the parallel courses of each branch, instead of being crossed, as formerly, by a farther part of the same curve, will be measured against a new form, entirely separate and distinct. This mode of composition is the same as the power of transition into forms belonging to a different rule or generation; because the forms which cross are not like those in the power

of Bacchus or Erichthonius, merely different parts of the same curve or rule; but, on the contrary, they exemplify the power of arbitrary composition, in bringing together forms which are not continuations of the same rule. This mode of composition, therefore, has most relation to the elementary power of Minerva, or arbitrary composition; and it was probably signified in Theseus, the hero of Athens. The characteristic of this mode of composition is the same as intellectual freedom, and agility in escaping from deduction, or from the remainder of what belongs to the same rule. Therefore it becomes as wit, which disconcerts the powers of tediousness, and will not long bear with sameness of method. But, in regard to the blending of powers foreign to each other, one characteristic of the Athenians was their love of strangers, and the encouragement which foreigners had to come among them. The number of famous characters really born in Athens was small in comparison with the number of those who only resided there. Theseus himself was born in the Peloponnesus. Solon was a native of Salamis; Diogenes was a native of Sinopé; Xeno came from Cyprus; Aristophanes from Rhodes; Aristotle was a Macedonian; Theophrastus a Lesbian; Chrysippus was born in Cilicia; and to this list might be added many more. These persons were cherished by the Athenians, as if for their own

taste in having among them forms entirely remote, and incapable of having been derived from the same source. Among the modern nations of Europe, the French approach most to the characteristics of this mode of composition, and shew the same talent for considering the temporary union of forms with others, not having a common derivation. This is the power of analysis, as shewn in Samuel Johnson, Jeffrey, and other modern critics. To Theseus may also be ascribed the love of transitions, which, by this mode of composition, are found without number, in a deduction which extends to infinitude. Thus, by a stroke of the hammer of Vulcan, there was brought forth the immortal or interminable Athana, clad in armour, and also bearing her shield as a superinduction. The name Pallas, signifying vibrating, may apply to the blending of two different motions or rules. To this mode of composition may also be referred doubt or incredulity, because of the difference of the forms which are blended. These do not belong to the same rule, or spring from the same source; and, therefore, their union is the same as the feeling of ambiguity, as shewn in the character of St Thomas, whose name signifies Geminus, double. Scepticism, according to some, was the distinguishing characteristic of the atomical Democritus. A sense of the presence of different elements in

that which appears as one leads to analysis, or the inclination to separate and discriminate them ; from whence the intellectual character of Pallas, whose wisdom was the same as the power of resolution, and corresponds with the science of chemistry. Her favourite bird the owl assumed its position in some ivied niche or dilapidated window of an uninhabited tower, and, during the silence of night, seemed tranquilly to enjoy the pleasures of speculation or scepticism. Its eyes were directed to the ground, where, by the moonlight, it distinctly perceived every blade of grass that entered into the composition of the matted sod, or received a foreign lustre from being garnished with a drop of dew. Perhaps the fox cautiously glided past, as if trusting that the sound of his steps could not be distinguished or separated from the murmur of a distant torrent which, being lost among chasms of rocks, seemed unwilling to announce that it retained any activity during the hours of repose, and rather moderated and restrained its voice, as if in soothing complaisance to the rest of the world. But, in the meantime, the favourite of Pallas remained awake and attentive to the sounds that were stirring, never failing to solve and discriminate those which occurred together. The last result of analysis is the sense of vacancy, negation, or silence, after all the elements in a compound have been exhausted or

taken away. In reference to this, the Athenians stamped upon their coin the figure of an empty jar, lying upon its side, to shew that the water which it had contained was all withdrawn. The reason is, that a composition has no element which is peculiar to itself, or which remains and constitutes its essence ; and, therefore, when the ingredients are separated, the result is negation, or the composition ceases to exist. This sublime feeling of silence and negation belongs peculiarly to Minerva or Theseus, and is connected with scepticism, to which there belongs a refined intellectual pleasure. The application of synthetical power to the fine arts produces a firm style, in which the component elements are not concealed or disguised, but allowed to appear, as in antique statues, of which the lineaments are not soft and natural, but rather composed of parts exemplifying different rules, like separate mathematical forms. Hence the style which belongs to the power of Minerva is founded on the beauty of such composition as is visible and intelligible. This was probably the character of Apelles, whose style in painting pleased the ancients most. The same is the case in architecture, in which the forms united are foreign to each other, and evidently generated from different rules. To the same class with Theseus may be referred the Oreades, or mountain-nymphs ; because every hill is a form acci-

dental or extraneous to the general level of the region in which it is situated ; nor is the mountain a continuation of that form which belongs to the neighbouring plains. It may be doubted whether the true Athenian character belonged to Plato ; for his compositions, instead of exemplifying rapidity, fire, and freedom of transition, are for the most part excessively protracted and tedious, and seem rather to belong to the power of Erichthonius, or continuity, which is more allied to long arguments. Socrates was accustomed to fasten on some proposition acknowledged by the person with whom he was conversing ; but Socrates seems to have been a form of Pan or repetition. Nor should this excite astonishment, for it is probable that even the universal Shakspeare, distinguished for his knowledge of the more vulgar constitution of human nature as fixed and unprogressive, was no other than a form of the universal Pan ; to whom belongs rotatory motion, and the repetition of cycles.

From continuity like this the power of Theseus must always seek to get free ; because the characteristic of Pallas is the arbitrary union of forms derived from totally different sources, and only allied by accidental situation, in which they still remain foreign to each other. This talent was shewn in Voltaire, whose agility was like that of Myrinna, whose tomb was an hill celebrated by

Homer as the place where the Trojans drew out their troops. The characteristic of Voltaire was freedom of transition. Thus, he describes a person travelling from world to world through the aerial medium, and struck with astonishment at the dissimilarity of the modes of existence which he is thus enabled to compare and measure against each other. He receives from a learned man a book which is to teach him the last results of all inquiry, and when opened it is found to be an universal blank; which is like the negation found by analysis, or by successively taking away the constituent parts of any composition. The power of analysis also gives birth to clearness and perspicuity of arrangement. This characteristic was shewn in music by Haydn, whose mode of combining is such as to exhibit the elements of musical form in the utmost clearness, but in an order which does not sooth or flatter the ear by much continuity. The music of the ancient Athenians must have had most resemblance to that of Haydn, which is the result of analysis, and presents the elements of musical form, as it were, perspicuously and apart. To the power of Minerva or Theseus there may also be ascribed, as a type of agility, the monkey, which, in its natural state, lives among the branches of trees, and leaps from one to another so easily, that it is capable of passing through a whole forest without ever touching the

ground. The reverse of this was shewn in Antæus, who gathered new strength every time he touched the earth, and who, like David Hume, seems to have been a form of Erichthonius or continuity.

In this mode of composition, as in the preceding, the angles which guide each successive branch must be supposed to be produced on a smaller scale to prevent the expansion of the form, which would otherwise become unlimited. The fall or contraction of breadth must be supposed to take place in the middle of each branch, and the same breadth to be continued to the middle of the next branch ; so that there will be no change of breadth at the intersection of the two branches. The unlimited expansion of this form was perhaps signified in the character of Orestes, who, having put to death his mother, was thenceforth deprived of repose. His situation became a favourite subject for tragedy, and the unhappy criminal, flying across the stage, was seen pursued by the furies with their scourges of snakes. When continued extension passes into another rule, it in a manner destroys or terminates the rule or mode of extension which precedes it ; and the ancients seem to have thought that such a transition resembles parricide, because, in theory, it makes an end of the previous generation ; but Solon made no law against parricide, he said because he disbelieved

in that crime. But, by the transitions of the branches into smaller scales, this form passes into infinite refinement, and the successive branches, which increase its extension, contract and diminish so fast, that the whole deduction scarcely appears to advance; while, at the same time, it continues to trace out an interminable series of composite forms; and Pallas, like Perseus, wears the head of the Gorgon upon her shield. Theseus is the same as the Ephraim of the Jews, and Hercules is Judah.

To this mode of composition must be referred the philosophy of Locke and others, as to the association of ideas; which is similar to the ancient Epicurean philosophy, both as to feeling and as to theory; in the first place, as to feeling, because the sense of enjoyment which it cultivates relates to those things which are agreeably assembled for the present; and it relates neither to the past nor the future, since it is not the prolongation of any one rule or continuous form, but is like the sense of ingredients well blended, and producing the state or condition of the mind for the time being. In theory, the association of ideas, according to Locke, and the concourse of atoms of different kinds and figures, according to the method of Epicurus, evidently belong both to composition. The discriminating and separating of these according to their supposed natures is a sort of analysis.

But the power of analysis leads always to that sense of vacuity or negation which Locke supposed to exist in the mind previous to external impressions. But Theseus, after having found a silence, or vacuity, again resorts to composition, and reassembles the scattered elements. To Theseus may also be ascribed the assemblage of mutual auxiliaries, a characteristic which appeared in all the achievements of him as the power of synthesis. It is perhaps also the Chimæra, an union of forms without real continuity, but breathing fire, because the transverse mode of progression has a certain relation to the power of Vulcan. This power must always want the freshness of nature and life ; but, at the same time, it has advantages which distinguish it from all the other powers. Therefore Horace, after Jove, ranks Pallas next, *Proximos illi tamen occupavit Pallas honores* ; and, in Greece, the Athenians were conspicuous beyond the other nations.

CHAP. VI.

ON THE PROGRESSIONS OF DOUBLE FORMS.

SECT. I.

ON THE POWERS OF FLUCTUATION.

Pollux or Eridanus.

THE next elementary power to be applied is that of Neptune, which has two angles, or two planes extending at the same time. This power will have the effect of resolving such a curve as that of Perseus into two separate parts. One of the curves must be the ruling one, and must be supposed to be guided by a certain series of angles, such as that of Perseus; and if, on the outside, there be made to project from the point of each angle a straight line equal to that which is the shorter side of the angle, and if the tops of these projecting lines be connected by straight lines, there will be produced another and outer series of angles, running collateral to those of the ruling curve, and capable of tracing successive branches opposite to those in the ruling curve.

Now, since, in this figure, quadrangles are built on each line which guides the ruling curve, and these quadrangles are all similar figures, therefore the uppermost sides of the successive quadrangles are in the same proportion to each other, as the successive lines which constitute their bases, and which also constitute the series of angles guiding the ruling curve, which is the inner. And, from the structure of the figure, it also follows that, in the outer series, the lines are always joined together at the same angle as in the inner series. Therefore the outer curve consists of successive branches, each of which is, in reality, the same form as the inner branch opposite to it, but produced on a larger scale, and diverging from the inner branch.

But, in this mode of composition, the ruling curve should not be indebted for its form to the same power as Perseus, but may take a new form peculiar to itself; and this is by at each branch shortening the later straight line by a quantity less in continued proportion, so as to leave the later line always greater than the preceding. In this figure the successive branches are evolutes, but become always slower in quality, while, in the form of Perseus, they become always more rapid. The mode of composition now described corresponds with the elementary power of Juno; because, in the two collateral series, the very

same form is always found opposite, and in a different place. Between the two forms relation passes to and fro, and like the waters of a river between its banks. This is the mythological character of Pollux, the god of pugilism, which art depends upon the opposition of forms, part for part. If the two series of forms were continued always on the same scale, they would continually diverge; but, to prevent the excessive expansion of the form, it is necessary that each successive pair of branches be transposed into a smaller scale, for instance a sixth; and this will greatly change the course of the outer series which is diverging; because, the inner series being taken as a guide for the other, it is evident that, after each transposition into a smaller scale, the top of the last projecting line (which is on a larger scale) must be connected with the top of the next (which is on a smaller scale), by a line which makes a great and sudden descent towards the inner curve, carrying down the outer curve along with it. After this descent the outer curve will be again produced, and will diverge as before. But, by means of the diminutions of scale, the general course of the two series will become that of involutes passing into infinite refinement. This mode of composition is also the mythological character of Eridanus or the Po, the image of which is also seen flowing among the stars, because it drowned

the burning rays of Phaëthon after he was precipitated from the chariot of the sun.

To this mode of composition may also be referred pilgrimage, as the fluctuation or change of that which passes into another place, like the waves of a river. Among the Homeric heroes, this power belonged to Ulysses, who visited every different shore, and even passed to Cimmeria to have conferences with the shades of the dead. The crafty wisdom attributed to Ulysses may refer to his shewing only one side of his thoughts or intentions. But, in relation to novelty of circumstances, or the fluctuation which arises from the change of distances, the characteristics of this power are likewise exemplified in Bunyan's allegory of the pilgrim's progress. Pollux was always represented having over his head a star, which must have been a planet or wanderer. To this class must also be referred the mythological character of Atlas, king of Mauritania, who was feigned to support the heavens on his shoulders, because Uranus or Cœlus is the same as relation, or the power of Juno, which belongs to this mode of composition. Atlas signifies unshaken, but he was probably named by antiphrasis; and his character must have referred to the powers of revolution and change in the heavens, by which new conjunctions are brought about, because all novelty of external circumstances comes originally

from motion. To Pollux and Atlas may therefore be ascribed agitation and change, and the celestial sign of the balance, which shews the effect of the same weight or power in a different place. This was probably the character of the ancient Carthaginians; from a colony of whom the Irish nation is supposed to be partly descended; and to the same class may be referred Hymen, the god of marriage, because of his relation to the power of Juno; for his torch shines with an agitated lustre on the affairs of mankind, and has an influence like that of the planets over their fortunes. In music, this power seems to have belonged to Handel, whose compositions have a kind of motion and tumult which cannot be imitated by method; and, in the fine arts, this power is characterized by the expression of fluctuation, or by that kind of felicity which appears to result from chance. In modern times, it has been shewn in the poetry of Sir Walter Scott, which often relates to peregrination and encounter, or to the change of circumstances which is produced by the powers of motion going on in the world; or sometimes even to the influences of the planets. The art of expressing fluctuation in the structure of verse belonged, among the ancients, to Catullus, the author of the Epithalamium of Peleus and Thetis; for his compositions seem to undulate, and he was characterized by the love of peregrina-

tion, and speaks of his expected pleasure in visiting the illustrious cities of Asia: *Jam mens præ-trepidans ævet vagari*. His native city gave birth also to Paul Veronese, who, in his paintings, assembled the figures and dresses of strangers of all nations who came to Venice, and in this manner allied his productions to the agitation of external occurrences. It was said of Hannibal, the Carthaginian leader, that he generally did not follow out the advantages of the victory he gained; and this trait corresponds with the want of inclination to go on according to rule. But novelty must always result from there being two different positions of the same form to be contrasted, as appears in the progression of this double form. Thus, the Lombardy poplar, growing beside the waters of Eridanus, when agitated by a breath of wind, shews the other sides of its leaves, having a different and lighter sort of green.

SECT. II.

ON THE CONTINUED RELATION OF TWO SIMPLE
CURVES.*Castor or Bellerophon.*

THE application of the power of Neptune is capable of producing also another double form, in which the two curves proceeding together are both simple, but in quality different from each other. Suppose that in the inner or ruling curve the same angle and the same proportion of lines is retained throughout, so as to continue always tracing the same form of a simple evolving hyperbola, without successive branches; and suppose that on the outside of this series of angles there be made to project from the points of the successive angles a series of lines diminishing according to the same proportion as that in which the straight lines guiding the inner curve increase; then if the tops of these projecting lines be connected by other straight lines, an outer series of angles will be produced as before, and it will be capable of guiding an outer curve, which, instead

of diverging from the other, will continually sink and approach towards it, because of the decreasing proportion of the lines extending between them. This outer curve will also be simple and without successive branches, because it is guided by a series of lines and angles generated always according to the same principle; but the outer curve will not be the same form as the inner on a larger scale, but will be an hyperbolic form differing in quality, because the successive quadrangles on which it is built are continually changing their forms and becoming more elongated; because the upright lines are shortening and decreasing in continued proportion, while the bases and upper series of lines are lengthening and increasing in continued proportion. But all this proceeds according to an unchanging principle; and the outer curve which is traced must be an hyperbola continually sinking and approaching to the other. It is only as evolutes that two curves differing in their qualities as hyperbolic forms can continue to accompany each other as collateral forms; because their curvature is always becoming less, and bringing both of them nearer to the same standard, which is a straight line. If they were traced as involutes, in which the degree of curvature is always increasing, their incongruity of direction would become more and more apparent; and they would sooner or later intersect, and cease to ex-

tend as collateral forms accompanying each other. The reverse is the case in the conjoined progress of two evolutes approaching each other, and always coming nearer to the same standard. But the breadth of the inner or lower curve would require to be contracted in continued proportion, as in the power of Proserpina; for otherwise the thickness of the curves would cause the two to meet, although the two series of angles guiding them remained always different and apart. In regard to length, their forms being evolutes, would continually increase; and to prevent their excessive expansion, it becomes necessary that the forms always, after a certain number of angles, be transposed into a smaller scale, for instance a sixth. Thus, the inner curve, though simple, would be forced to break its continuity of extension, and assume, at each transposition, the form of a curve angle, having both sides convex; and it is evident also that at each diminution of scale the top of the last upright line (on the larger scale) would require to be connected with the top of the next (on the smaller scale) by a straight line making a great and sudden descent towards the inner curve, the outer course being carried down along with it; after which the form of the outer curve would again be produced as before, and would continue gradually sinking towards the inner curve. By means of the changes of course produced by these

successive diminutions of scale, the general courses of the two curves together would be that of involutes, passing into infinite refinement ; although all the successive portions were parts of the same two evolutes.

The peculiar characteristic of this power is, that the relation which has once begun to flow between the two different curves is always continued, and is drawn out like the waters of a smooth and placid river. It has relation to the pleasures of idleness, or of any simple and continuous employment ; and it was probably signified in the characters of the Sirens, who, on the coast of Sicily, endeavoured to detain Ulysses by their warbling. But it was probably also the true character of Achilles, the most powerful of the Grecian warriors ; because, by the diminution of scales, it contracts and compresses the future course of the same simple curves, and becomes as strength and swiftness. When Achilles withdrew in anger, because of the loss of Briseis, he was contented to remain idle in his tent. In his native region was the celebrated vale of Tempé, watered by the Peneus, and affording such a prolongation of delight, that even the inhabitants of Olympus descended to waste their time in it. This mode of composition has most relation to the elementary power of Ceres ; because it is the continued approach of two dissimilar forms, between which the difference is al-

ways becoming less, but cannot be exhausted. From the continued sinking of the outer curve, this power becomes the same as the love of humility ; and, from never passing into a succession of different branches, it becomes the same as homeliness and contentment with things which are easily procured. This was probably the character of Antisthenes, the Cynic, and his follower Diogenes, who studied to live on the cheapest possible terms. In modern times, Swift was distinguished for an affected humility in the choice of subjects for poetry ; Hogarth shewed the same taste in painting ; and Cobbett, the political writer, has endeavoured to illustrate the pleasures of thrift and of humble and contented labour, and to shew the value of the resources which are hidden in every plain material and vulgar possession. Similar characteristics are shewn in Cowper's mode of treating religious subjects in poetry. But all these persons were distinguished for those powers of hatred and recoil which belong to Ceres ; and they were characterized also by the inclination to study nature in its humblest forms, or to shew the resources contained in the simplest materials that can be assumed. This is also the character of Southey, among the modern English poets. To this mode of composition may be referred the Elysian fields, where the shades of heroes existed in a state of pleasing idleness,

amidst blooming meadows, receiving light from a sky of their own. Finding their happiness prolonged from day to day, they wished for nothing more than to experience the progressive continuation of the same feelings. Among the nations of Europe, it would appear that some classes of the Spaniards approach the nearest to this character; because they are distinguished for idleness and contentment with little, when more might easily be procured. Some travellers describe them as spending whole days wrapt in their cloaks, leaning in rows against a wall, or dozing under a tree. Sicily was considered as sacred to Proserpina, because from thence she had been carried off by Pluto; but Proserpina is the retrogression of one simple curve; while the power of the Sirens is the evolution of two different simple curves, which together are forced to assume the form of an involute. Such is the freshness and continuity of vegetation, and, at the same time, its internal powers of repulsion or elasticity.

But, in regard to the doubleness of the form, Thessaly was said to be also the country of the Centaurs. The education of Achilles was intrusted to Chiron, in whose structure appeared the form both of horse and of man; and this was probably meant to signify the conjoined progress of two curves altogether different in quality. To the same class may be referred Castor, the tamer

of horses ; since the art of riding is skill in reconciling the powers and motions of two dissimilar forms. The same power belonged also to Bellerophon, who mounted the winged Pegasus, and controlled him amidst the regions of the air. The name of Pegasus is derived from πηγῇ, a spring, because of the relation which extends like a river between the two different curves ; and something like this is the effort of the mind in continuous poetical invention, when it finds the materials altogether within itself. But to this mode of composition must be referred the art of producing the bathos, or of finding something always more humble, easy, and soothing to human nature, by shewing how much is contained in the most ordinary materials, and in those things which are not difficult to be found. The Thessalians were celebrated for their skill in enchantments, perhaps from the power of anticipating the future parts of the same continuity, and drawing them into a narrower and closer form, which is like anticipating the future course of any simple affection of the mind, and increasing its strength by bringing always more of it into a smaller compass. Castor, like Pollux, was represented with a star over his head ; and to him, more particularly, should be ascribed the power of tranquillizing the sea ; nor would Bellerophon have been thrown from his horse had he not attempted to soar to heaven, in-

stead of carrying Pegasus up into the clouds only to let him gradually and smoothly sink towards the terrestrial plains, where, the density of the air being increased, its elasticity would prevent him from ever reaching the ground. Such is the art of lowering a theme. Perhaps this was also the character of the Cumean or Campanian Sibyl, to whom Apollo granted an endless continuation of years ; but she, contracting and wearing away in her bodily form, seemed at last to retain only a voice.

CHAP. VII.

ON THE POWERS OF COLLOCATION, OR THE
DISTRIBUTION OF FINITE PARTS OF THE
HYPERBOLA.

Geryon or Silvanus.

IF the power of Vesta, which is equivalent to three angles or planes produced at the same time, be applied to the hyperbola, it must be supposed to separate it into three different parts or courses, each conducted by its own series of angles. But the power of Vesta is also that of terminating and breaking off, and it is also the power of a plane coming down to fasten upon the side of another, which gives the power of collocation or the idea of building; and, therefore, in this mode of composition, the series of angles which trace the curves may be supposed to break off and leave finite parts of the curves, but to retain the power of tracing out the remainders of the same curves elsewhere. In conformity to the power of Vesta, therefore, they may be supposed to build and fasten subsequent portions of the same curves to the sides of

those portions which have already been placed ; and to the sides of this second order of branches or terminated curves to add a third, and so on in continued progression ; and the added parts being applied to the points of angles, in the series which leads the former portion of the curve, the portions which are built upon that portion must be supposed to cross it. To enable this distribution of forms to proceed, it is evident that every succeeding order of parts must be transposed in a smaller scale, so as still to find room, and not be entangled with the others. On each finite portion of the curve two others must be built, that there may be a continued multiplication of parts. Thus, in a tree, each larger branch has smaller ones built upon it, and upon them are arranged smaller branches still. Without these transpositions, this mode of laying out the hyperbola would produce the grossest exuberance and confusion, which was probably signified in the character of the Hydra and the marsh of Lerna. But, by the continued diminution of scales, it assumes order and refinement ; and each portion of the curve, by also crossing within itself twice, may acquire variety of direction, and will not change the distribution of the general form. This mode of composition was probably signified in Silvanus, the divinity of the woods, which have an obvious relation to the same form. The wife of Silvanus was named Fatua,

and was supposed to occasion the nightmare by perching on the breasts of persons asleep. But the character of Silvanus being founded on the power of spreading and distributing forms in every direction, and finding out new sites for them upon the sides of each other, may easily be distinguished from the more vulgar attributes of Pan. The power of Silvanus is probably the true character of the people of Indostan, among whom is found the streaked tiger, a form of breaking off or tearing to pieces, as in the distribution of the parts of a single curve. Among the Indians are found the remains of the enormous systems of law, morality, and mythology. This mode of composition has most relation to the elementary power of Neptune, which bears two planes having relation to a common basis; and, in this mode of composition, each branch has two others built upon it. One of the ephithets of Neptune was Phutalmios, or productive. To Silvanus may also be ascribed the power of melancholy and obscuration from intervening parts; like the obscuration or gloom which exists in the midst of a forest. Nevertheless, this is the true character of the ship *Argo*, which signified the power of being loaded, or of carrying other forms upon it. This is the first type of navigation; and, among animals, the same character is expressed in the bear, which, in the northern seas, is sometimes found floating on large pieces of ice,

as if to signify its relation to loading. But a harmony extends throughout the parts which are laid out according to this mode of composition ; because all the parts in each of the three curves has relation to corresponding parts in the other two, at each transposition into a smaller scale, and throughout each new order of branches which is produced. The branches which correspond, however, are always farther separated, and are forced to seek for each other through a crowd of intervening parts. This mode of composition was perhaps also signified in three-bodied Geryon. Among the nations of modern Europe, this character belongs to the Germans in regard to obscurity and depth of feeling, and to the Dutch, in regard to methodical distribution, and the mere collocation of things not blended in the same continuity. Thus Silvanus differs from the power of Theseus. In another point of view, the power of Silvanus may be assumed as the original type of epic poetry, which is not a mere narrative of the order of events, but is rather an ample and profuse array of parts spreading in every direction, although all belonging to one subject or mode of deduction. To the same class with Silvanus therefore may be referred the mode of construction which belongs to Homer, and which exemplifies the power of ramification and minuteness of detail, but still preserves the clearest order. This power is also shewn in

the Dutch school of painting, which expresses the nature of woods and marshes, and, in general, the various compilations and distributions of substance. To this class may also be referred the science of geology, which had its origin among the Germans. Among the Homeric heroes this seems to have been the power belonging to the Salaminian Ajax, who was considered as the next warrior after Achilles, but somewhat tardy and stupid. To this class may also be referred the philosophical system of Spinoza, who endeavoured to prove that the continuation of one substance, whether worldly or divine, constitutes the nature of all things, and extends throughout those forms which have the appearance of being separate and particular. This mode of composition was, perhaps, also signified in the golden fleece, which was the object of the expedition undertaken by Jason. The artificial use of substance was expressed in the poisons and enchantments of Medea, and also in her cutting Æson to pieces to restore him to youth, which applies to breaking off the hyperbola and laying it out in a different order. The golden ram of Phryxus was capable of transporting its owner through the air, because it carries parts of the same curve into a new order. To this class may perhaps be referred the artist Dædalus, whose wings, being constructed only with wax, could not bear the heat of the sun. The power of Silvanus

is departure from continued derivation in joining parts of the same form together ; and to Silvanus may be ascribed sententiousness, which gives forth wisdom in minute portions. This character belonged, among the English poets, to Pope ; but the same power appeared in Virgil as art in shifting the arrangement of his words, and producing beauties of collocation. But to Silvanus may also be ascribed the study of conic sections, as the means of comparing different parts of the same curve. Mathematical reasoning depends much on the power of arbitrary collocation and comparison of figures. Sir Isaac Newton, whose genius was gross and tardy, like that of Ajax, was a native of Lincolnshire, a region abounding with fens. From each two later branches being fastened upon the side of a former portion of the same simple curve, this mode of composition is like a reference to personal experience or past states of the mind. This constitutes the sedateness of age. The essential characteristic of a man of experience and sententious wisdom is the power of referring to situations in which he has formerly been. Thus the genius of Newton fitted him for comparing the different portions of the trajectories or courses through which moving bodies pass. But this mode of composition, from each new form being speedily broken off and left terminated, becomes like a feeling of the vanity of all human undertakings, and gives

birth to a peculiar strain of morality. Thus Solomon, having tried every different pursuit and enjoyment, and having accumulated vast experience as an individual, declared all things to be vanity, a declaration which applied only to his own kind of progression as to feeling. This mode of writing is studied by Lord Byron among the modern English poets. To Silvanus, however, belongs a great depth and tenderness of sentiment, founded always on the reference of present affections to those which have preceded them. Thus the wallflower, egregious in its tints, nods over the remains of some dilapidated tower. At each new distribution of forms, by the power of Silvanus, the forms brought together are more remote as to their real places in the curve from whence they are taken. Thus the stork and crane, and other aquatic birds, unite in themselves the substances collected from remote marshes. To the same class may be referred the literary commentators who build their observations upon those of previous commentators till the structure becomes overloaded. But it is evident that the successive orders of forms, proceeding according to the power of Silvanus, are capable of infinite progression. This power has a certain relation to the finite ranges successively explored by the power of Orion or of Bacchus, who was celebrated for having conquered India; and, perhaps, his attendant Silenus was in reality a form

of Silvanus. But as to the accumulation of particular forms, this power was evidently signified in the character of Plutus, the god of wealth, who derived his origin from Jason and Ceres; for every little portion which is broken off is gained from an infinite curve, which can never be exhausted.

After this power of Silvanus, which is produced from the application of the power of Vesta, this series is done; because the next power, which is Mars, is the same as that by which the hyperbola was originally accelerated. Therefore, after this, there is only room for a composition of compositions.

AN

INDEX

TO

PROPER NAMES

MENTIONED IN THE FOREGOING TREATISE.

A	PAGE		PAGE
ACHERON - -	83	Ashur, tribe of -	34
Achilles -	126	Athenians -	108
Adonis -	81	Atlas - -	120
Æsculapius -	67		
Ajax - -	134	B	
Alcæus - -	54	Bacchus -	49
Anacreon -	63	Bacon - -	64
Angelo, Michael -	78	Bellerophon -	123
Antisthenes -	127	Benjamin, tribe of	45
Apollo - -	15	Bunyan - -	120
Arcadians -	84	Buonaparte -	71
Argives - -	96	Byron - -	137
Argo, the ship -	131		
Ariadné -	65, 77	C	
Aristophanes -	104	Cadmus - -	104
Aristotle -	66	Cælus - -	6

	PAGE		PAGE
Carthaginians	- 121	Elysian fields	- 127
Castor	- - 123	English	- 64
Catullus	- 121	Ephraim	- - 115
Centaurs	- 123	Epicurus	- 115
Ceres	- - 38	Erichthonius	- 100
Chaldeans	- - 93	Eridanus	- 119
Chimæra	- 116	Eros	- - 80
Chinese	- 105	Etrurians	- 78
Chiron	- 128		
Circe	- 87	F	
Cobbett	- 129	Fates	- 94
Cocytus	- 89	Fatua	- 132
Coleridge	- 92	Fauns	- - 58
Cowper	- - 127	Flora	- 78
Crete	- - 65	French	- - 109
		Furies	- - 89
D			
Dædalus	- 135	G	
Dan, tribe of	- 25	Gad, tribe of	- 29
Danté	- - 78	Galileo	- 78
Democritus	- 109	Ganymede	- 105
Demogorgon	- 88	Germans	- 134
Diana	- - 18	Geryon	- 131
Diogenes	- 127	Goethé	- 80
Diomed	- 57	Graces, the	- 53
Dutch	- - 134		
		H	
E		Handel	- - 121
Egyptians	- 102	Haydn	- - 113
Elis	- - 76	Hebe	- - 56

	PAGE		PAGE
Hercules - -	60	Locke - -	105
Hesiod - -	80	Lucifer - -	19
Hogarth -	127		
Homer - -	134	M	
Horace -	93	Mars - -	29
Hume, David -	104	Matthew, St -	106
Hydra -	132	Medea - -	135
Hymen -	121	Medusa - -	89
		Meleager - -	54
I		Mercury - -	45
Jacob - -	6	Milton - -	86
Jason - -	135	Minerva - -	41
Jeffrey - -	109	Minos - -	65
Jerusalem - -	93	Morpheus -	63
Indostan - -	131	Moses - -	103
Johnson, Samuel -	109	Muses, the three earlier	11
Joseph -	42	Muses, the nine -	60
Irish - -	121	Mytelené - -	54
Issachar, tribe of -	25		
Italy - -	55	N	
Judah, tribe of -	18	Naphthali -	38
Judas Iscariot -	66	Nemesis - -	93
Juno - -	5	Neptune - -	25
Jupiter -	9	Nestor - -	80
		Newton - -	136
L		Niobé - -	105
Lacedæmonians -	90		
Latona - -	15	O	
Lethé - -	96	Olympic games -	76
Levi, tribe of -	16	Oreades - -	111

		PAGE		R	PAGE
Orion	-	49	Raphael	-	84
Ovid	-	103	Reuben, tribe of	-	6
			Rhea	-	26
	P		Rhodians	-	104
Palamedes	-	96	Romans	-	55
Pan	-	67	Rousseau	-	104
Paul, St	-	66	Rubens	-	84
Pegasus	-	129			
Pelops	-	72		S	
Perseus	-	88	Sappho	-	54
Persians	-	86	Saturn	-	46
Phlegethon	-	75	Scotch	-	69
Phœnicians	-	97	Scott, Sir Walter	-	121
Pindar	-	96	Shakspeare	-	112
Pirithous	-	87	Sibyl	-	130
Plato	-	102	Sicily	-	128
Pluto	-	81	Silenus	-	137
Plutus	-	138	Silvanus	-	131
Po, the river	-	119	Simeon, tribe of	-	10
Pollux	-	117	Sirens	-	126
Pope, the	-	57	Socrates	-	112
Pope, the poet	-	136	Solomon	-	137
Pomona	-	57	Somnus	-	91
Priapus	-	56	Southey	-	127
Prometheus	-	69	Spaniards	-	128
Proserpina	-	72	Spartans	-	90
Proteus	-	26	Spenser	-	63
Pythagoras	-	86	Spinosa	-	135
Pythian Apollo	-	69	Styx	-	86

INDEX.

143

		PAGE			PAGE
Swift	-	127	Uranus	-	6
Swiss	-	104			
			V		
	T		Venetians	-	97
Tempé	-	126	Venus	-	34
Thales	-	97	Veronese	-	122
Thamyris	-	79	Vertumnus	-	94
Thebans	-	103	Vesta	-	24
Themis	-	12	Virgil	-	136
Theophrastus	-	54	Voltaire	-	113
Theseus	-	107	Vulcan	-	20
Thessaly	-	128			
Typhon	-	102	W		
			Wordsworth	-	78
	U				
Ulysses	-	120	Z		
Urania	-	8	Zabulon, tribe of	-	21

THE END.

EDINBURGH,

PRINTED BY OLIVER & BOYD.

1

304200

440

6517

23-H

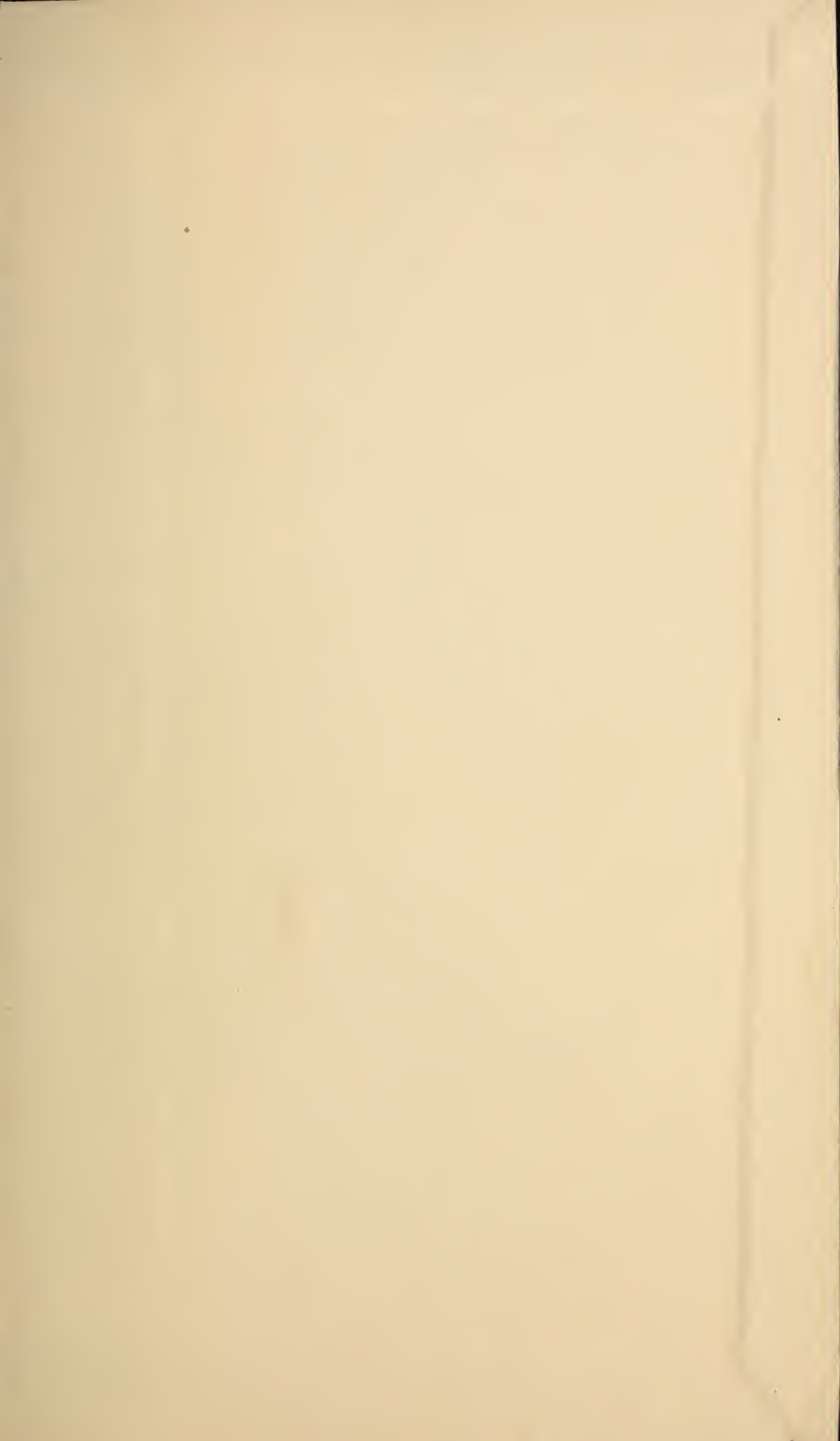


Deacidified using the Bookkeeper process
Neutralizing agent: Magnesium Oxide
Treatment Date: Jan. 2005

PreservationTechnologies

A WORLD LEADER IN PAPER PRESERVATION

111 Thomson Park Drive
Cranberry Township, PA 16066
(724) 779-2111



LIBRARY OF CONGRESS



0 013 632 702 1

